EUROPEAN CENTRAL BANK

EUROSYSTEM

Annual Report

2018

Contents

The year at a glance

While the economic expansion in the euro area continued in 2018, the economy experienced a loss of growth momentum. **Growth decelerated from 2.5% in 2017 to 1.8% in 2018** as a series of headwinds emerged over the course of the year. A significant weakening of world trade, coupled with a number of country and sector-specific factors, weighed on the external sector and manufacturing in particular.

The domestic economy nonetheless remained relatively resilient, buoyed by a **continuing recovery in the labour market**. Employment has increased by 10 million people since the trough in mid-2013 and the unemployment rate fell to 7.8% in December, the lowest rate since October 2008. Strong labour market dynamics translated into steady and broad-based wage growth, which reached 2.2% in the last quarter. Rising employment and wages in turn helped underpin consumer spending.

Headline inflation increased relative to the previous year, **averaging 1.7% over 2018**, although this mostly reflected higher energy prices. Measures of underlying inflation moved broadly sideways throughout the year. However, the outlook for domestic demand, the labour market and wage growth gave us confidence that inflation would continue to converge towards our objective over the medium term.

As a result, the Governing Council anticipated in June 2018 reducing the monthly pace of net purchases under the asset purchase programme (APP) to €15 billion from September and – subject to incoming data confirming its medium-term inflation outlook – ending net purchases in December. At the same time, the Governing Council communicated that it expected the key ECB interest rates to remain at their present levels at least through the summer of 2019[1] and in any case for as long as necessary to ensure that the evolution of inflation remained aligned with expectations of a sustained adjustment path.

In December, the **Governing Council** reviewed the economic outlook and concluded that the June assessment remained broadly accurate. On that basis, it **ended net asset purchases under the APP** and **confirmed the enhanced forward guidance** on the path of interest rates. In parallel, it confirmed the **need for continued significant monetary policy stimulus** to support the further build-up of domestic price pressures and headline inflation developments over the medium term.

That stimulus would be provided by forward guidance on key interest rates, reinforced by reinvestments of the maturing principal payments of the sizeable stock of assets acquired under the APP. The Governing Council conveyed that such reinvestments would continue for an extended period of time past the date when key interest rates rise, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.

1 In March 2019 the Governing Council communicated that it now expected key interest rates to remain at their present levels at least through the end of 2019, and in any case for as long as necessary to ensure the continued sustained convergence of inflation to levels that are below, but close to, 2% over the medium term.

The Governing Council also confirmed that, in any event, it stood ready to adjust all of its instruments, as appropriate, to ensure that inflation continued to move towards our aim in a sustained manner.

The continued domestic recovery and micro- and macroprudential actions also helped **support financial sector resilience** in 2018. The aggregate Common Equity Tier 1 ratio of significant institutions reached 14.2% at the end of the third quarter of 2018. Outstanding non-performing loans (NPLs) declined by €94 billion in the first three quarters of 2018, and euro area significant institutions' aggregate NPL ratio stood at 4.2%, down from 5.2% a year earlier.

Risk-taking in parts of the financial and real estate markets contributed to mild signs of overstretched valuations in some areas, with marked cross-country differences, while risks continued to grow in the non-bank financial sector. In this environment, macroprudential measures were implemented in euro area countries to mitigate systemic risks: during 2018 the ECB assessed 103 notifications of macroprudential policy decisions by national authorities.

The ECB continued to **support the benchmark reform in the euro area**, developing a new money market reference rate during 2018. The ECB published the methodology for the euro short-term rate (€STR) in June 2018 after it received broad support in two public consultations. The €STR is based on average daily volumes of approximately €32 billion as traded by around 32 banks. The private sector working group on euro risk-free rates recommended the €STR as the replacement for EONIA in September 2018. The €STR will be available in October 2019, following a period of thorough internal testing by the Eurosystem.

2018 also marked a **significant step forward in euro payments**. In November, the Eurosystem launched the TARGET Instant Payment Settlement (TIPS) service, which offers instant payments around the clock in less than ten seconds.

As shown by the December Eurobarometer, **support for the euro in 2018 rose to 75%**. The ECB continued its efforts to connect with euro area citizens and to improve its **accountability and transparency** by engaging with the European Parliament, but also by expanding our "Youth Dialogues" and by fostering the use of our website, social media and Visitor Centre.

Turning to the coming year, substantial monetary policy stimulus remains essential to ensure the continued build-up of domestic price pressures over the medium term. In view of the persistence of uncertainties related to geopolitical factors, the threat of protectionism and vulnerabilities in emerging markets, the conduct of monetary policy in the euro area will continue to require patience, prudence and persistence.

Frankfurt am Main, April 2019

Mario Draghi
President

The year in figures

Euro area real GDP growth moderated in 2018

1.8%

Euro area output continued to expand in 2018, albeit at a slower pace than in 2017. This reflected a weakening of global trade, compounded by some country and sector-specific developments.

Increase of headline inflation in 2018

1.7%

Average headline inflation in the euro area increased further, reflecting rising energy and, to a lesser extent, food prices.

Further expansion of the Eurosystem's balance sheet

€3.4 trillion

The APP led to a further expansion of the Eurosystem's balance sheet in 2018, although at a somewhat lower rate than in previous years. At the end of 2018 monetary policy-related items on the assets side amounted to €3.4 trillion.

Notable decrease in the total value of non-performing loans

– €94 billion

Banks' solvency positions remained solid, while the total value of NPLs decreased notably in the first three quarters of the year.

Payments across Europe in real time around the clock

<10 seconds

Facilitated by the launch of TIPS in November 2018, individuals and firms can transfer money between each other in less than ten seconds by using instant payment services.

Highest level of support for the euro

75%

In 2018, 75% of the euro area's 340 million citizens supported the euro. This is the highest level on record.

Enhanced engagement with the public

20,743 visitors

In 2018 the ECB hosted 20,743 visitors in its newly established Visitor Centre. The ECB continued to expand its social media engagement, launching its Instagram channel in November. Over 457,000 followers stay in touch with the ECB via Twitter.

Strengthening of the ECB's defences

33 institutions worldwide

The ECB promotes information sharing within the ESCB and facilitates the Operational Security Situational Awareness (OSSA) network for information exchange, which has 33 member institutions worldwide.

1 Economic activity continued to expand at rates above potential, while cost pressures strengthened and broadened

Following the exceptionally strong growth dynamics in 2017, the euro area economic expansion continued in 2018, albeit at a more moderate pace as external demand weakened and some country and sector-specific factors dampened growth. At the same time, the underlying drivers of domestic demand remained in place. Further improvements in the labour markets supported private consumption, while business investment continued to benefit from favourable financing conditions and improving balance sheets. The ongoing expansion and tightening of labour markets also translated into a continued strengthening and broadening of domestic cost pressures. At the same time, measures of underlying inflation remained generally muted. However, looking ahead, underlying inflation is expected to increase over the medium term, supported by the ECB's monetary policy measures, the ongoing economic expansion and rising wage growth.

1.1 A less balanced global expansion

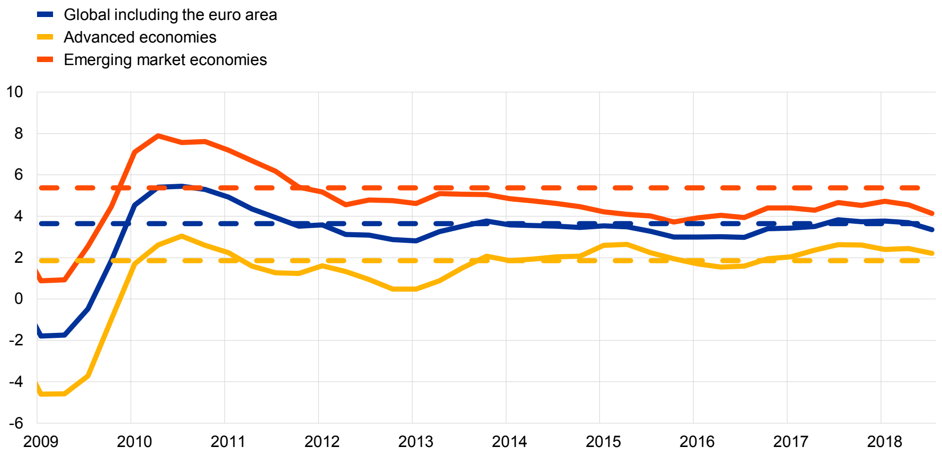
Global growth continued at rates close to its long-run average

The global economic expansion continued at a steady pace of 3.6% in the first three quarters of 2018, a rate similar to that in the preceding year and close to its long-run average (see Chart 1). However, compared with previous years, the upturn in economic activity became more uneven and less synchronised across countries. While growth remained robust in the United States, it faltered in a number of other economies, including Japan and some emerging markets, in particular Turkey and Argentina. Activity also decelerated in China in the second half of the year. Looking at the different components, growth in industrial production and world trade weakened, while private consumption growth remained solid.

Chart 1

Global GDP growth

(annual percentage changes; quarterly data)



Sources: Haver Analytics, national sources and ECB calculations.
Notes: Regional aggregates are computed using GDP adjusted with purchasing power parity weights. The dashed lines indicate the long-term average (between March 1999 and September 2018).

Unemployment rates stood in many countries at post-crisis lows

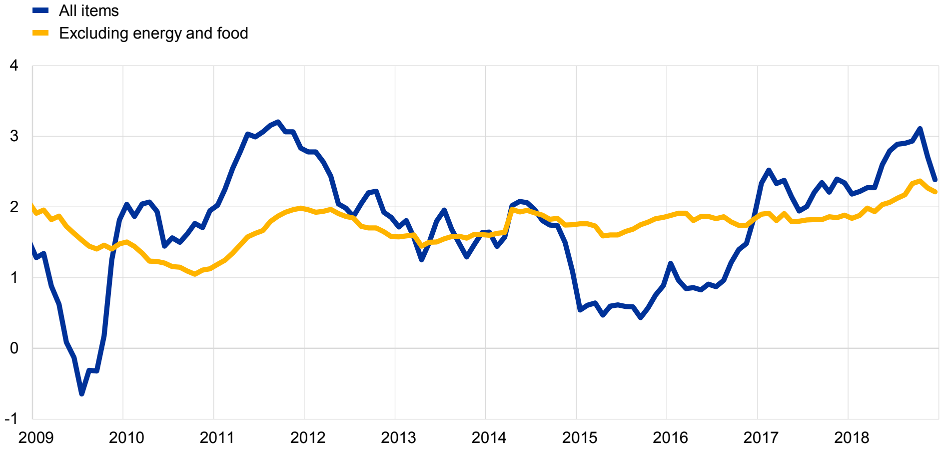
As the ninth consecutive year of the current global expansion began, unemployment rates across both advanced economies and emerging market economies continued to decline and, in many countries, stood at post-crisis lows. In some cases, they even stood at historical lows, such as in the United Kingdom and in Japan. Labour shortages became evident in several advanced economies, especially among specialised and highly skilled workers.

There are increasing signs that the ongoing decline in slack in both productive capacity and labour markets at the global level has been gradually, albeit only slowly, translating into higher wage growth and higher underlying inflation. In the OECD area, underlying inflation (excluding energy and food) increased to 2.1% in 2018. Headline inflation increased much more strongly, reaching 2.6% in annual terms, although it subsided in the second half of the year mostly on account of lower oil prices (see Chart 2).

Chart 2

OECD inflation rates

(annual percentage changes; monthly data)



Sources: Haver Analytics, OECD and ECB calculations.

Supply-side developments were a key factor driving oil prices in 2018, in an environment of continued solid global demand and tight inventories. In the first half of the year oil prices rose gradually from around USD 67 per barrel to USD 79 per barrel, following a greater than expected compliance by the 22 OPEC and non-OPEC producers with their agreed production cuts. Oil prices fluctuated between USD 70 and USD 86 per barrel until early autumn, but declined thereafter to around USD 52 per barrel by year-end. The rise to a high of USD 86 per barrel by early October was related to fears of a steep decline in Iranian oil exports, following the reintroduction of sanctions by the United States. However, oil prices significantly moderated by the end of December owing to a combination of weakened demand prospects and concerns over excess supply as the United States, some OPEC members and the Russian Federation increased their production. In addition, there were some exemptions from the sanctions imposed on the Islamic Republic of Iran. Meanwhile, non-oil commodity prices decreased overall in 2018 (in US dollar terms).[2] Food and metal prices remained broadly stable in the first half of 2018. Food prices declined during the second half of the year amid both ample global food supply and concerns about US tariffs and the risk of retaliation by affected countries. Metal prices also retreated since the summer due to lower demand from China, as well as concerns about an escalation of trade tensions.

The effective exchange rate of the euro appreciated

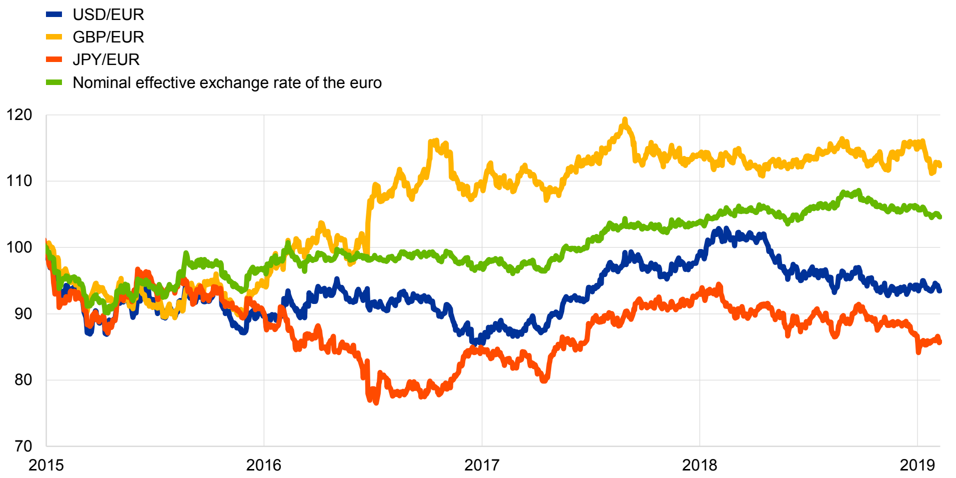
The exchange rate of the euro appreciated in nominal effective terms (see Chart 3) since the beginning of 2018. In bilateral terms, the euro depreciated vis-à-vis other major currencies. The depreciation of the euro was particularly pronounced against the US dollar, the Japanese yen and – albeit to a lesser extent – the Swiss franc. At the same time, the euro appreciated significantly against most emerging market currencies, in particular the Chinese renminbi and, as a result of domestic headwinds, the Turkish lira and the Argentinian peso.

2 Data source: Hamburg Institute of International Economics (HWWI).

Chart 3

The euro exchange rate

(daily data; 1 January 2015 = 100)



Sources: Bloomberg, HWWI, ECB and ECB calculations.
Note: Nominal effective exchange rate against 38 major trading partners.

Trade uncertainty clouded the global outlook

While global growth continued at a solid pace, risks and uncertainties increasingly clouded the outlook. In particular, trade uncertainty rose following actions by the US administration and responses by its trading partners. This culminated with two announcements by the US administration of tariffs targeting USD 250 billion of Chinese exports in the summer, and China announced retaliation on USD 110 billion of exports from the United States. In addition, doubts over Brexit also weighed on the trade outlook. While the direct impact of these tariffs should remain contained at the global level, such protectionist threats have the potential to erode confidence, disrupt global value chains and adversely affect investment, and in turn constitute a downside risk to the global economic outlook. By the end of the year there were already signs that trade uncertainty had started to affect the conduct of business. If trade disputes escalate further, global growth could be severely impaired.

1.2 Economic growth moderated, but remained consistent with an ongoing expansion

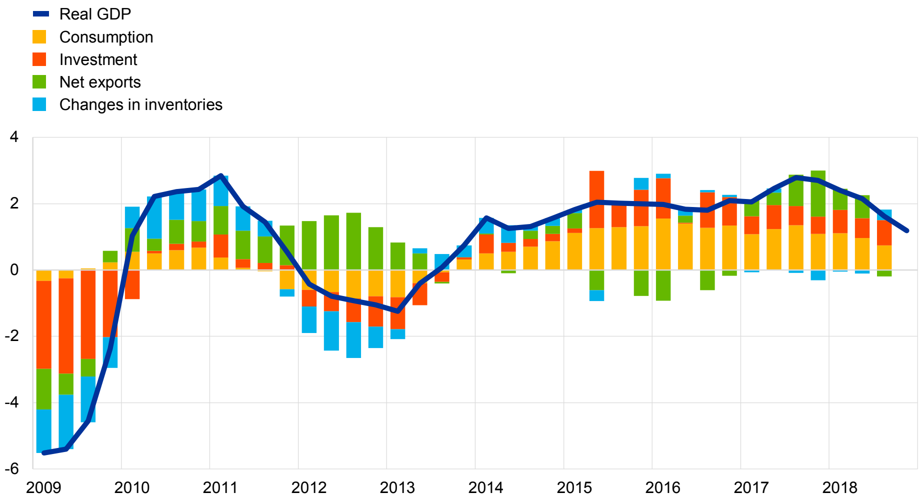
Euro area real GDP growth moderated in 2018

Following the exceptionally strong growth dynamics in 2017, euro area real GDP growth moderated to 1.8% in 2018 (see Chart 4). Although this slowdown was mainly attributable to a weakening in global trade, other factors of a more transitory nature also played a role. In the first half of 2018 weather-related disruptions and industrial action, especially in the transportation sector, affected output in a number of countries. In the second half of the year, and in particular in the third quarter, there was a significant disruption of automobile production following the introduction of the Worldwide Harmonised Light Vehicle Test Procedure on 1 September. Furthermore, the decline in growth may have been compounded by an increase in political uncertainty, particularly in relation to the prospect of increasing protectionism.

Chart 4

Euro area real GDP

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.
Note: Annual GDP growth for the fourth quarter of 2018 refers to the preliminary flash estimate, while the latest observations for the components are for the third quarter of 2018.

At the same time, the underlying growth momentum remained solid

At the same time, the underlying growth momentum remained solid, supported by a robust labour market and steady income and profit growth. Spillovers from the weakness of and heightened uncertainty about external demand to domestic demand have so far remained contained.

Euro area private consumption increased in 2018 at an average annual growth rate of around 1.3%, supported by stronger labour income and favourable financing conditions. At the same time, the gradual increase in oil prices since mid-2017 did not significantly dent the growth of real disposable income. As the economic expansion progressed, the contribution of taxes and transfers became somewhat more negative in 2018. In good times, automatic fiscal stabilisers tend to have a dampening effect on the growth of real disposable income.

Domestic demand growth, favourable financing conditions and corporate profitability continued to support euro area business investment in 2018. Investment increased also in sectors facing capacity constraints such as the transportation sector. However, the less dynamic external environment and the heightened global uncertainty, in particular in relation to trade policies, weighed on the investment activities of firms, particularly those more exposed to the external environment. Going forward, business investment growth is likely to moderate in view of the less supportive external environment and more moderate final demand, and the expected gradual tightening of financing conditions.

Construction investment, both residential and non-residential, also continued improving, albeit from low levels, alongside the recovery in euro area housing markets. This, in turn, reflected growing domestic demand, which was supported by real income growth, a low interest rate environment and favourable lending conditions.

Nevertheless, bottlenecks in the labour market appear to have limited growth in the construction sector in the course of 2018.

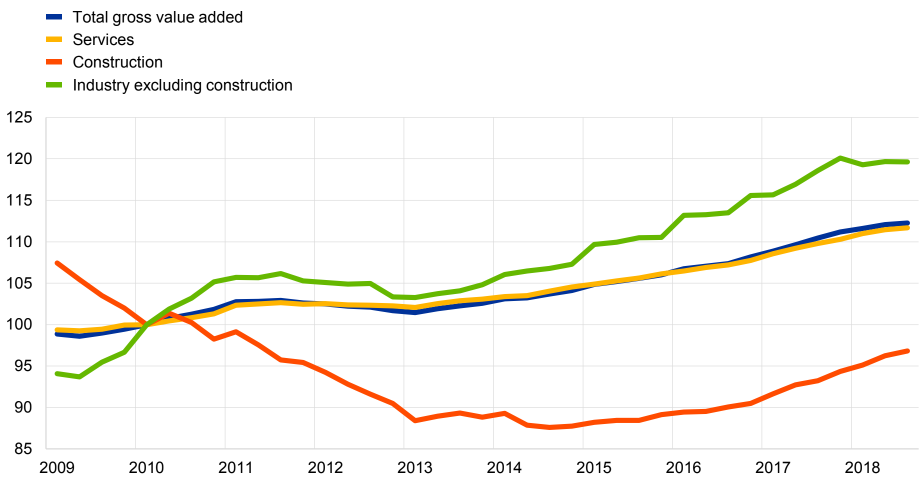
In 2018 the contribution of the external sector to the overall euro area performance was particularly modest, at any rate significantly weaker than in 2017. Waning foreign demand, especially from Asia and in particular for capital goods, due to increased uncertainty and heightened trade tensions undermined euro area exports to the region and acted as a drag on the total net trade contribution to GDP. Exports to the United Kingdom and China suffered the most from the changing international environment, while exports to the United States benefited, probably from anticipation effects in relation to the risk of the US administration also enforcing tariffs on imports from the EU. Supported by positive economic developments in the area, the trade momentum within the euro area initially proved resilient. However, it weakened significantly in the second half of 2018 as trade uncertainty and new car emission standards took a toll on trade in capital goods and cars. Some headwinds may also have arisen from past euro exchange rate appreciations.

Output growth in 2018 continued to be broad-based across economic sectors (see Chart 5). Total gross value added rose further, by around 2%, which was somewhat lower than in the previous year, but close to the growth rates recorded in 2015 and 2016. Value added in industry (excluding construction) and value added in the services sector both increased by around 2% in 2018. At the same time, value added in construction, albeit still below its pre-crisis level, continued its expansion, rising by around 4%. This again confirmed that the construction sector is increasingly recovering from the protracted period of contraction or slow growth that followed the onset of the financial crisis in 2008.

Chart 5

Euro area real gross value added by economic activity

(index: Q1 2010 = 100)



Sources: Eurostat and ECB calculations.
Note: The latest observations are for the third quarter of 2018.

Euro area labour markets continued to improve, while the age composition of employment changed

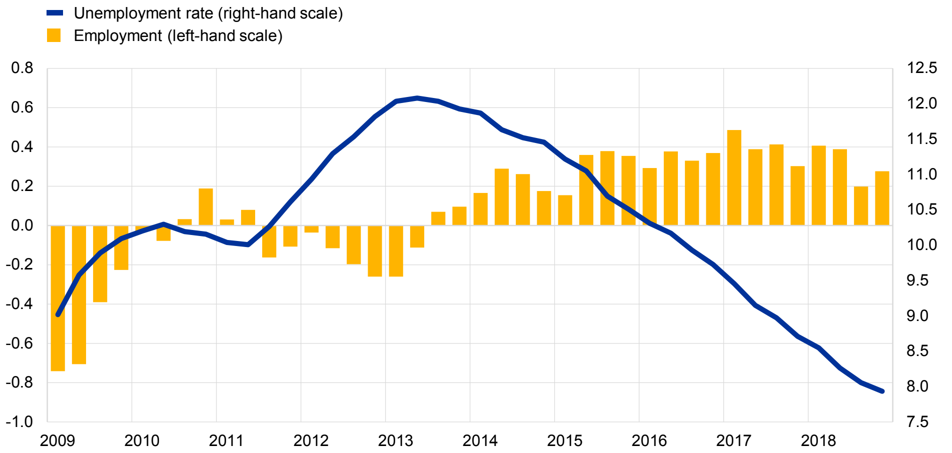
Euro area labour markets recovered further in 2018; since the trough in 2013, employment has increased by around 10 million persons

Euro area labour markets recovered further in 2018 (see Chart 6). The unemployment rate continued to decline in 2018 and stood at 7.8% in December, the lowest rate since October 2008. The decline in unemployment, which started in the second half of 2013, has been broad-based across gender and age groups, while levels of the unemployment rate continue to differ significantly across euro area countries. By the fourth quarter of the year the number of persons employed in the euro area stood 1.3% above the level at the same time in 2017, or 6.7% above the last trough in the second quarter of 2013. Over the whole recovery period, employment has increased by around 10 million persons. This has taken the level of employment above its pre-crisis peak reached in the first quarter of 2008. Employment growth over the recovery has been broad-based across countries and sectors, and has occurred against the background of further increases in labour supply.

Chart 6

Labour market indicators

(percentage of the labour force; quarter-on-quarter growth rate; seasonally adjusted)



Source: Eurostat.
Notes: The latest observations are for the fourth quarter of 2018. Quarterly employment growth for the fourth quarter of 2018 refers to the preliminary flash estimate.

A closer look at the composition of employment growth over the recovery reveals that the growth has been concentrated among older persons.[3] Indeed, about three-quarters of the cumulative employment growth has come from those aged between 55 and 74. The increasing employment of the older population during the recovery is primarily due to the rising participation rate of this group. This can be assumed to largely reflect the impact of past pension reforms, as well as increasing education levels in this group. The significant increase in the share of older workers in employment may give rise to far-reaching changes in the economy, through impacts on patterns in consumption, savings and investment, as well as on wage and

3 For more details on the age composition of employment, see the box entitled "Compositional changes behind the growth in euro area employment during the recovery", *Economic Bulletin*, Issue 8, ECB, 2018.

productivity developments.[4] Over the recovery, about one-third of employment growth has come from part-time employment, which is closely linked to the longer-term upward trends of increasing labour supply by female and older workers, as well as of continuing concentration of employment growth in the services sector.[5] Looking ahead, labour shortages in some countries and sectors can be expected to contribute to a moderation in these continuing trends.

Government deficit continues to fall, but uneven risks remain

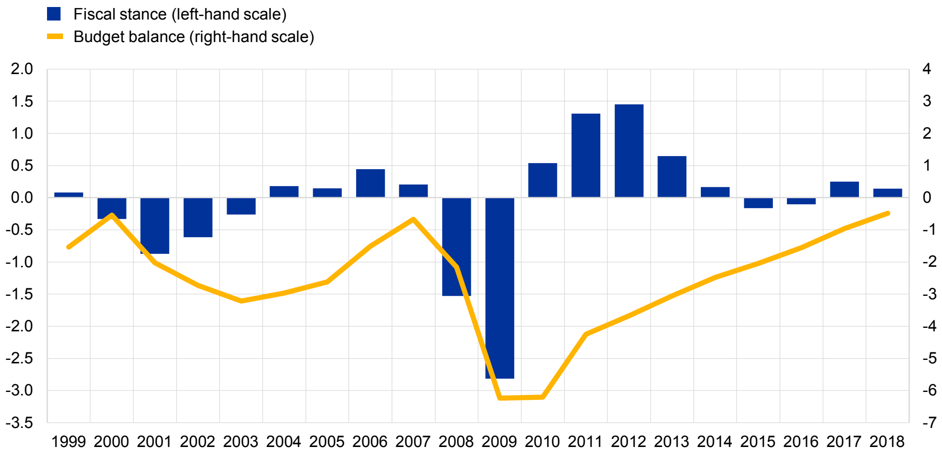
The euro area general government deficit ratio declined mainly on account of favourable cyclical developments

The euro area general government deficit ratio continued to decline in 2018 and reached 0.6% of GDP, a level rarely seen since the start of Economic and Monetary Union (EMU) in 1999 (see Chart 7). As has been the case over the last few years, the fall in the overall deficit was to a large extent the result of favourable cyclical developments, in combination with falling interest expenditures as maturing high-cost debt continued to be replaced with new debt issued at lower interest rates. The euro area fiscal stance[6] was broadly neutral in 2018, although the euro area aggregate masked significant differences across countries, with large windfalls in a few countries compensating in the aggregate for procyclical fiscal loosening in vulnerable countries.

Chart 7

General government balance and fiscal stance

(percentage of GDP)



Sources: Eurostat and ECB calculations.

In a context of expanding economic activity, the falling government deficit contributed to sustaining a decline in the ratio of gross debt to GDP, from 86.6% in 2017 to 84.8% in 2018. While the debt ratio is projected to decline also over the coming years, it

4 See Box 1 in the article entitled "Labour supply and employment growth", *Economic Bulletin*, Issue 1, ECB, 2018.

5 For further details, see the article entitled "Labour supply and employment growth", *Economic Bulletin*, Issue 1, ECB, 2018.

6 The fiscal stance reflects the direction and size of the stimulus from fiscal policies to the economy, beyond the automatic reaction of public finances to the business cycle. It is measured as the change in the cyclically adjusted primary balance ratio net of government support to the financial sector. For more information on the concept of the euro area fiscal stance, see the article entitled "The euro area fiscal stance", *Economic Bulletin*, Issue 4, ECB, 2016.

should be kept in mind that it remains significantly higher than at the start of EMU. High debt levels constitute a vulnerability, and particularly so in countries that suffer from low potential output growth and face growing demographic challenges (see Box 1). Such countries would have limited margins to adjust fiscal policies in the event of a deterioration in economic activity or increasing interest expenditures. Vulnerable countries would therefore be well-advised to build up buffers now that economic conditions allow it.

Box 1
Population ageing and its fiscal impact

Population ageing is a challenge for the sustainability of public finances in the euro area. Societies are ageing, as people live longer and have fewer children. The demographic change is well captured by the rising old-age dependency ratio, which gives the number of people aged 65 or older relative to the working age population. Eurostat projects the ratio to increase from 31% in 2016 to 52% in 2070 in the euro area as a whole. The bulk of the increase will take place in the next two decades, as the baby boom generation is approaching retirement age. While population ageing also potentially has major adverse macroeconomic implications, for example for productivity, the labour force and the equilibrium real interest rate, this box solely focuses on its fiscal impact.

Population ageing will substantially impact public finances over the decades to come. Ageing-related public expenditures in the euro area, which amounted to one-quarter of GDP in 2016, are already elevated by international standards. According to the 2018 Ageing Report, they are projected to increase further to 28% of GDP in 2040 and to decline slightly to 27% of GDP by 2070 (see Chart A).[7] The aggregate picture masks considerable heterogeneity across countries. The projected changes in total ageing-related expenditure range from an increase of 12.9 percentage points of GDP in Luxembourg to a decline of 6.4 percentage points of GDP in Greece over the period 2016-70.[8] If the increases in ageing-related expenditures are left unaddressed, they will swell to very large amounts over the medium-to-long term. This would pose a challenge to fiscal sustainability already in the medium term, in particular in countries with already high public debt levels today (see Chart B). However, in several countries, in particular in France, Italy and Spain, the ageing-related cost pressures are projected to diminish from their peak in the medium term by 2070 (see Chart A).

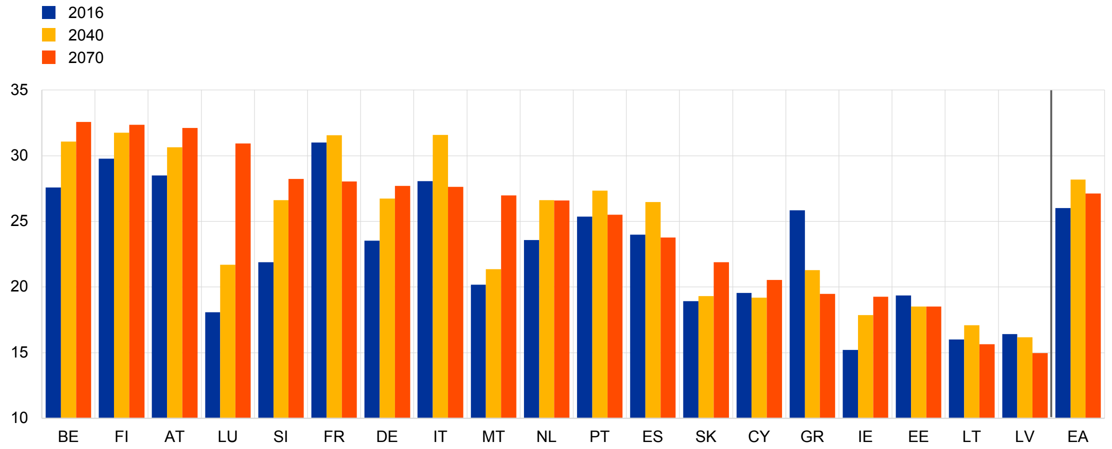
[7] See "The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States (2016-2070)", European Commission, 25 May 2018. The 2018 Ageing Report is the latest of the reports prepared every three years by the Ageing Working Group (AWG) of the Economic Policy Committee and the European Commission.

[8] In the case of Greece, the projected decline in ageing-related expenditures is largely the result of recently adopted pension reforms. However, this improved outlook would be at risk if court decisions were to trigger a reversal of past pension reforms.

Chart A

Total ageing-related expenditure in the euro area

(percentage of GDP)

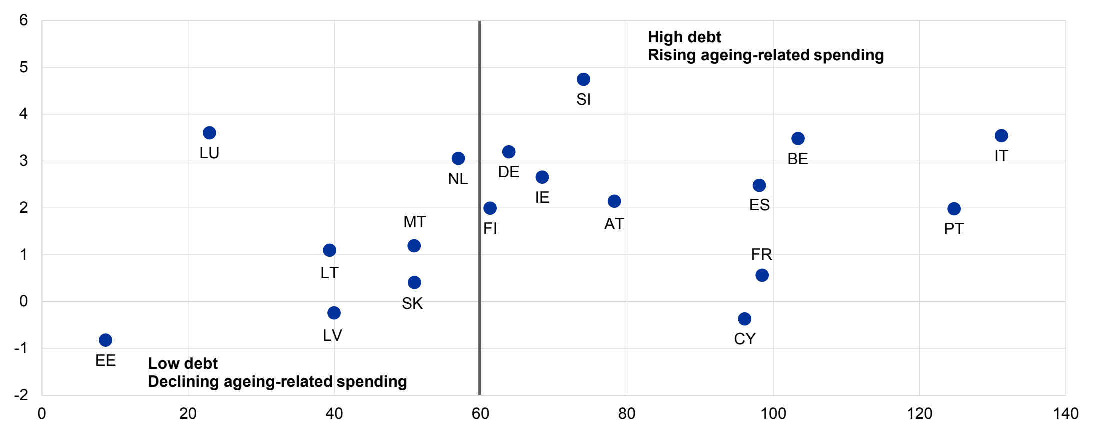


Source: 2018 Ageing Report.

Chart B

Ageing-related spending pressures and current debt levels across countries

(x-axis: government debt-to-GDP ratio in 2017; y-axis: change in total ageing-related expenditures as a percentage of GDP, 2016−40)



Sources: 2018 Ageing Report and Eurostat.
Note: Greece is excluded as it is an outlier with a public debt ratio of 176.1% of GDP in 2017 and a decline in total ageing-related spending by 4.6% of GDP.

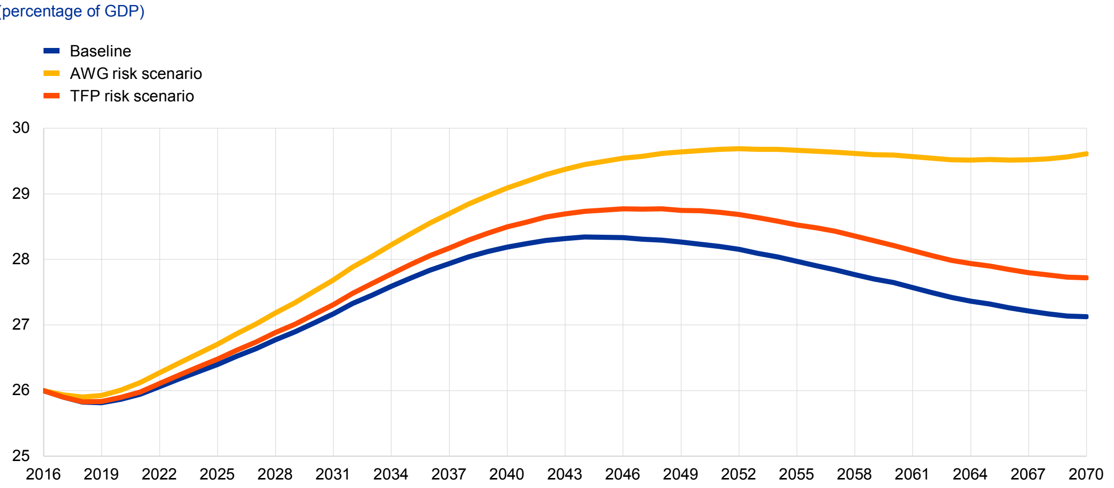
Public spending affected by ageing includes in particular expenditures on pensions, as well as on health care and long-term care. With an increasing number of beneficiaries of public pension schemes facing a declining number of contributors, deficits in pension systems, and ultimately in overall fiscal balances, will rise unless parameters are adjusted. Moreover, health and long-term care systems are expected to burden public finances in the coming decades, as these services are mostly financed by public systems. The impact of ageing on public revenues is less straightforward, as its effects on the various tax bases (for example on consumption, labour income and capital) are partially offsetting and expected to vary over time.

To capture some of the uncertainty surrounding the ageing-related spending projections, the Ageing Report includes several adverse sensitivity analyses and risk scenarios, which indeed suggest higher cost pressures (see Chart C). One risk scenario implies higher costs for health and long-term care, on

the grounds of an increased use of expensive medical equipment and a stronger upward convergence in living standards. In this scenario, the increase in total ageing-related expenditures would be more than twice as large as in the baseline scenario at the end of the projection horizon in 2070. A lower total factor productivity (TFP) growth rate than assumed in the baseline projections would also imply considerably higher costs in the long term.

Chart C

Ageing-related spending scenarios in the euro area



Source: 2018 Ageing Report.
Notes: The TFP risk scenario assumes convergence to a lower TFP growth rate by 2070 (i.e. to 0.8% instead of 1%). The AWG risk scenario assumes a higher income elasticity of healthcare spending (due to increased use of expensive medical technology) and higher long-term care costs (due to increasing coverage of recipients of long-term care and upward convergence in real living standards).

To address future ageing-related spending pressures, most euro area countries have implemented pension reforms in recent years, in some cases complemented by more limited reforms to health and long-term care systems. Such reforms reflected in particular fiscal sustainability concerns stemming from the sovereign debt crisis. Pension reforms were particularly substantial in countries subject to macroeconomic adjustment programmes. While these reforms have helped countries to partly contain their risks to pension sustainability, more recently the pace of reforms has stalled and, in a few instances, reform efforts have even been reversed or face a significant risk of being reversed.

Looking ahead, countries with already high public debt levels in particular need to safeguard against the upcoming demographic challenges. To contain the potential spending pressures coming from social security systems, countries should adopt further reforms if they do not build up fiscal buffers, while reform reversals should be avoided. In terms of concrete policy action, the reforms required may vary across countries, also reflecting differences in the starting position and societal preferences. In fact, some countries may favour reforms to entitlements and boosting private sector provision of pensions beyond what has already been achieved. Other countries may favour linking retirement ages to life expectancy, while maintaining the pension benefit ratio of the system. Yet other countries may opt for higher contribution rates, although this may put a heavy burden on younger generations. These options are not mutually exclusive and can be implemented in combination. When designing pension reforms, it is also important to be mindful of their possible implications for labour supply and the supply side of the economy, as higher levels of potential growth are essential to improve social welfare. Ideally pension reforms should be complemented by labour market reforms fostering in particular the participation of elderly workers. Finally, an important challenge for fiscal

policymakers is to avoid raising uncertainty regarding the risk of reform reversals that could undermine fiscal sustainability.

Compliance with the SGP is weakest in the most vulnerable countries

In this light, it is of concern that compliance with the Stability and Growth Pact (SGP) is weakest for those countries that are most vulnerable to shocks. In fact, according to the European Commission projections, most of the countries that have not yet reached sound budgetary positions missed their commitments under the SGP in 2018. Among the seven euro area countries that are assessed by the Commission to be at risk of a deviation from the SGP's preventive arm in 2018, four countries – Belgium, France, Italy and Portugal – have debt ratios above 90% of GDP. In addition, while Spain – the only country subject to an excessive deficit procedure (EDP) in 2018 – is projected to meet its 2018 EDP correction deadline, this achievement masks a high and increasing structural deficit, as opposed to the recommended improvement. Furthermore, the European Commission's assessment indicates that only ten countries intend to be compliant with the SGP according to draft budgetary plans for 2019. It is particularly worrying that most of the countries with high debt ratios are not included in this group.

Reform momentum in the euro area remains lacklustre

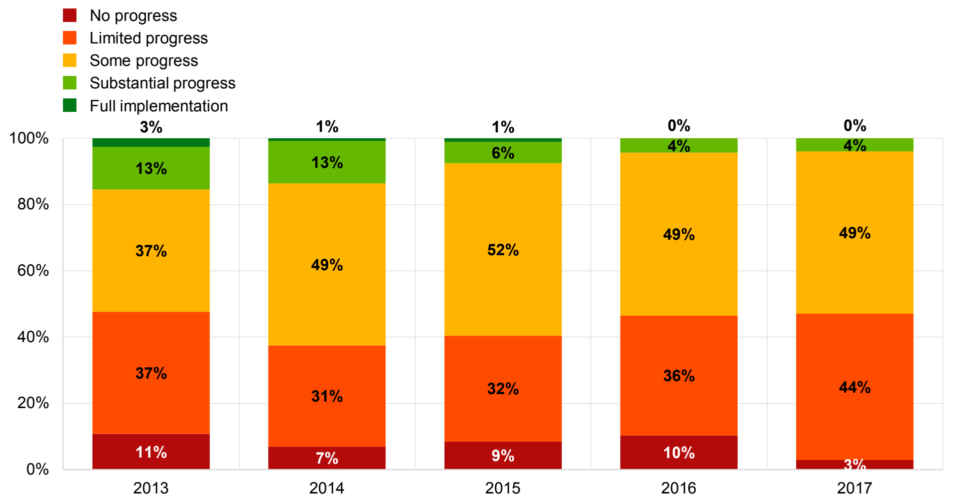
Reform progress has stalled; none of the 2017 CSRs has been fully implemented

The country-specific recommendations (CSRs) provide policy recommendations tailored to an individual country on how to enhance economic growth and resilience, while maintaining sound public finances. The CSRs are jointly endorsed by Member States in the European Council. Similarly to last year, the Commission concluded that the overwhelming majority – more than 90% – of reform recommendations given to euro area countries in 2017 have been followed by only "some" or "limited" progress in implementation, while none has been fully implemented (see Chart 8).[9]

[9] While it often takes some time for reforms to show their full effects, the Commission's *multiannual* assessments also indicate that reform momentum has weakened over recent years. This could reflect several factors, including reform fatigue and a decline in the perceived urgency of reforms. Some of the remaining reform needs might also be particularly challenging.

Chart 8

Implementation of the country-specific recommendations by euro area countries



Sources: ECB calculations based on the European Commission's Country Reports.
Notes: The chart shows the implementation of CSRs at the level of sub-headings for the year as assessed by the European Commission in the respective Country Report published the following year. "Full implementation" signifies that the Member State has implemented all measures needed to address the CSR appropriately; "substantial progress" signifies that the Member State has adopted measures that go a long way towards addressing the CSR, most of which have been implemented; "some progress" signifies that the Member State has adopted measures that partly address the CSR, and/or it has adopted measures that address the CSR but a fair amount of work is still needed to fully address it as only a few of the adopted measures have been implemented; "limited progress" signifies that the Member State has announced certain measures but these only address the CSR to a limited extent, and/or it has presented non-legislative acts, yet with no further follow-up in terms of implementation; and "no progress" signifies that the Member State has not credibly announced or adopted any measures to address the CSR. CSRs for implementation of the SGP are not included.

Well-designed structural reforms could yield substantial benefits for euro area citizens via stronger and more inclusive growth in employment and incomes. A recent Eurosystem analysis shows that there are ample opportunities for reforms that simultaneously enhance resilience, long-term growth and social fairness.[10] A case in point are reforms that address rent-seeking, in particular those strengthening product market competition and the quality of public institutions. Similarly, policies supporting education and life-long learning improve not only an economy's long-term growth prospects, but also the employment opportunities of vulnerable groups of society.

1.3 Inflation on a higher path

Increase of headline inflation in 2018, driven by energy and food prices

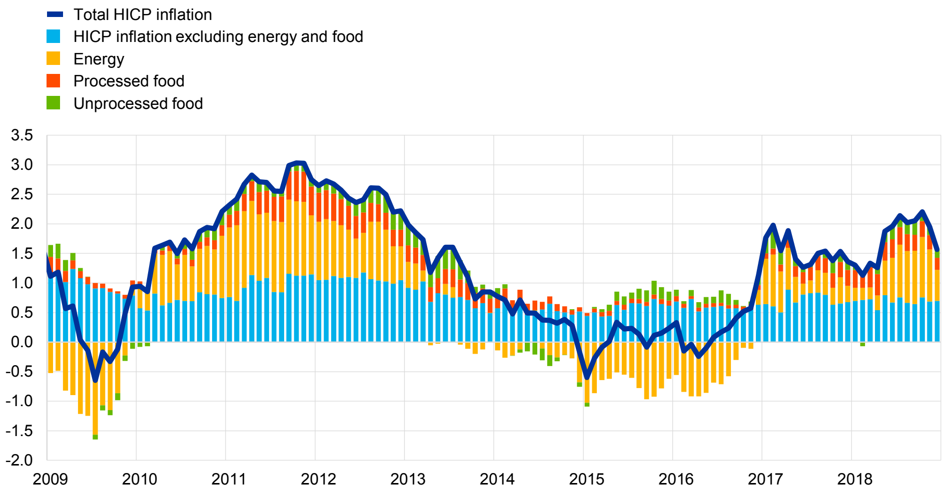
Headline inflation in the euro area, as measured by the Harmonised Index of Consumer Prices (HICP), rose to 1.7% on average in 2018, from 1.5% the year before. This increase largely reflected higher contributions from energy prices and, to a lesser extent, food prices. By contrast, the contribution of underlying inflation, as measured by HICP inflation excluding energy and food, remained broadly unchanged. This inflation measure remained subdued, moving essentially sideways around 1% throughout the year (see Chart 9).

[10] See Masuch, K., Anderton, R., Setzer, R. and Benalal, N. (editors), "Structural policies in the euro area", *Occasional Paper Series*, No 210, ECB, June 2018.

Chart 9

HICP inflation and contributions by components

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.

Developments in energy prices strongly influenced the intra-year profile of headline HICP inflation. Driven by the rise in crude oil prices, energy inflation increased strongly between April and July and thereafter remained at high year-on-year rates of change (with a peak of nearly 11% in October 2018). Thus, the contribution of energy inflation to headline inflation rose from 0.2 percentage point in the first quarter of 2018 to 0.9 and 0.8 percentage point in the last two quarters of 2018. Developments in unprocessed food prices added to this intra-year profile due to the weather-related sharp increases in the annual rates of change of fruit and vegetable prices in the summer months, which however unwound in the last months of the year. This caused the contribution of unprocessed food to headline inflation to rise from zero in the first quarter of 2018 to more than 0.2 percentage point in September 2018, before declining somewhat in the last quarter of 2018.

Inflation excluding energy and food remained subdued

HICP inflation excluding energy and food remained unchanged compared with 2017, moving like other measures of underlying inflation broadly sideways throughout the year.[11] However, when also excluding the more volatile components related to clothing and travel, this underlying measure of inflation increased.

The rather subdued developments in HICP inflation excluding energy and food were observed in both main components, namely non-energy industrial goods and services. Non-energy industrial goods inflation showed some volatility, declining up to September 2018 before increasing somewhat thereafter, and stood at 0.4% in 2018, as in 2017. Looking at indicators for price pressures at different stages of the pricing chain, both the annual rate of change of producer prices for domestic sales of non-food consumer goods and that of import prices for non-food consumer goods increased in the course of 2018. In the case of import prices this essentially reflected the waning impact of the euro appreciation in 2017, while in the case of producer

[11] See the article entitled "Measures of underlying inflation for the euro area", *Economic Bulletin*, Issue 4, ECB, 2018, for an analysis of these measures in the euro area.

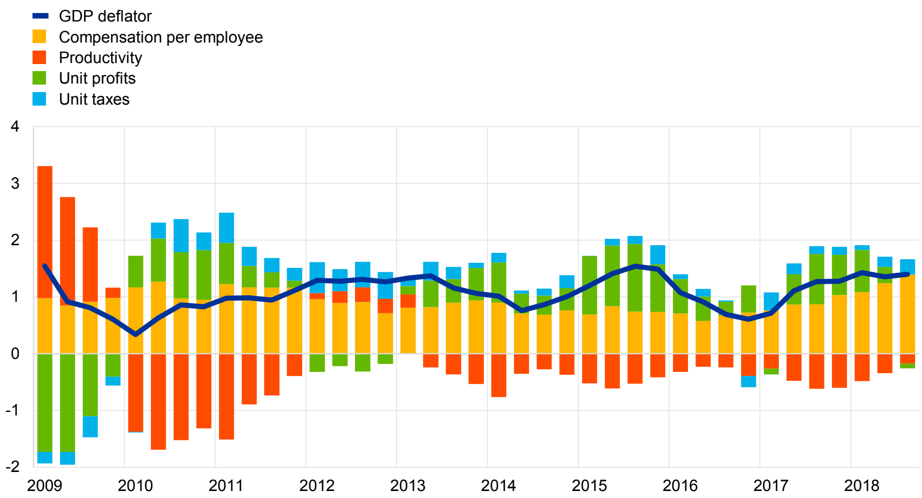
prices it likely reflected the growth in input costs and retail sales volumes. Services price inflation was broadly unchanged in 2018 at 1.3% and remained well below its long-term average. A modest pick-up occurred in the annual rate of change of services prices in the last quarter of 2018, but it largely reflected the base effect of rather weak developments in services inflation during the same months of 2017. Overall, inflation in services prices, which have a large labour cost content, has not yet mirrored the pick-up in wage growth.

The annual growth of compensation per employee continued to increase

Domestic cost pressures as measured by the growth in the GDP deflator remained constant in the first three quarters of 2018, slightly above the rate reached in the second half of 2017 (see Chart 10). The annual growth in compensation per employee, which had reached a trough in mid-2016, continued to increase in 2018, standing at 2.5% in the third quarter of the year, which was above its historical average of 2.1% (since 1999). Overall, the pick-up in wage growth reflected improved labour market conditions (see Section 1.2 above) and the fading-away of the factors that had contributed to containing wage growth in the past, such as the impact of low past inflation as a result of formal and informal indexation schemes and the effects of labour market reforms implemented in some countries during the financial crisis. In a moderately favourable demand environment, the higher wage growth translated into higher unit labour cost growth, but the impact of this on domestic cost pressures was mitigated by profit developments (measured in terms of the gross operating surplus), which have weakened in recent quarters, partly reflecting the negative impact of the terms-of-trade deterioration related to higher oil prices.[12]

Chart 10
Breakdown of the GDP deflator

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.

Longer-term inflation expectations were somewhat higher in 2018 than in 2017. Expectations for inflation five years ahead from the ECB Survey of Professional Forecasters have remained unchanged at 1.9% for a succession of quarters, staying

[12] See the box entitled "The role of wages in the pick-up of inflation", *Economic Bulletin*, Issue 5, ECB, 2018.

slightly higher than in 2017. Market-based measures of longer-term inflation expectations, such as the five-year inflation-linked swap rate five years ahead, showed some volatility, declining towards the end of the year, but remaining broadly unchanged on average compared with 2017.

1.4 Favourable financing conditions supported credit and money growth

In 2018 euro area financial markets were influenced by uncertainties regarding the global and domestic euro area economic outlook in combination with politically induced risk-off sentiment – in particular relating to Brexit, trade protectionism and uncertainty about the policy stance of the Italian government on public finances. Money market rates and longer-term bond yields remained at very low levels, in part thanks to the continued monetary policy accommodation provided by the ECB. Financing conditions supported business investment, while household wealth underpinned private consumption. Money growth declined, while growth in credit to the private sector increased further.

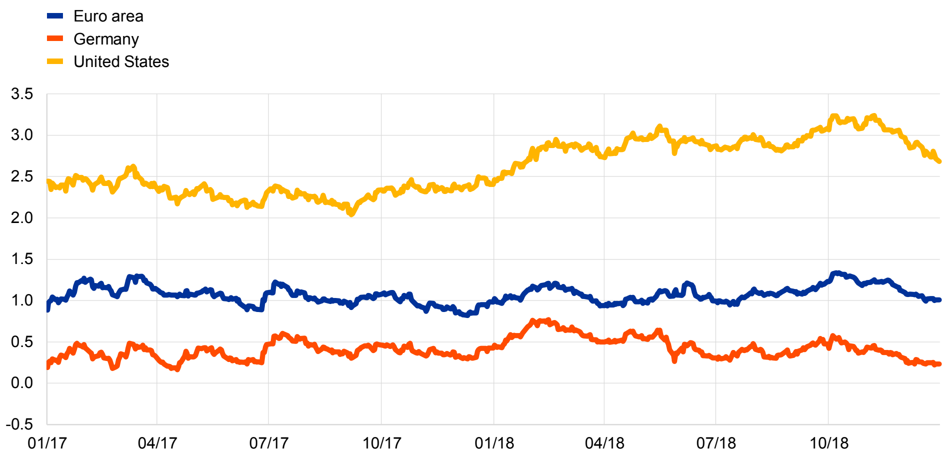
Euro area government bond yields remained broadly unchanged

Euro area government bond yields remained broadly unchanged in 2018, albeit rising slightly towards the end of the year (see Chart 11). This largely reflected spillovers from the gradual withdrawal of monetary policy accommodation in the United States, as well as the widening in Italian spreads, which has so far had limited spillovers to other euro area sovereign bond markets. The euro area GDP-weighted average of ten-year sovereign bond yields stood at 1.01% on 31 December 2018, broadly unchanged from the average level in 2017. The spread of euro area countries' ten-year sovereign bond yields against the German ten-year Bund yield increased moderately, against the background of prevailing fiscal policy uncertainty.

Chart 11

Ten-year sovereign bond yields in the euro area, the United States and Germany

(percentages per annum; daily data)



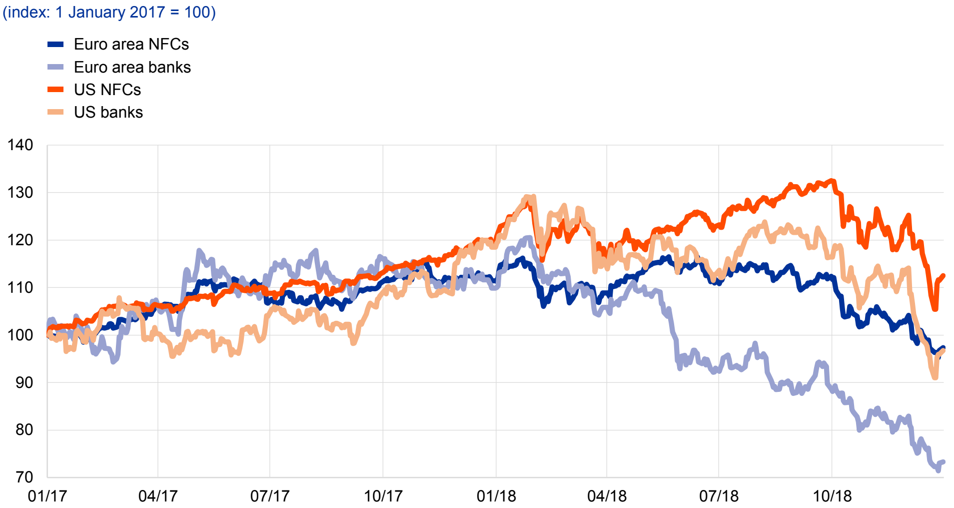
Sources: Bloomberg, Thomson Reuters Datastream and ECB calculations.
Notes: The euro area data refer to the ten-year GDP-weighted average of sovereign bond yields. The latest observations are for 31 December 2018.

Euro area equity prices decreased significantly

Euro area equity prices decreased significantly in 2018, amid increased global tensions, Italian political uncertainty and the gradual normalisation of monetary policy accommodation in advanced economies (see Chart 12). More specifically, a broad index for equity prices of euro area non-financial corporations (NFCs) declined by 12.6% over the course of 2018, while an index of euro area bank equity prices decreased by 33.3%. Equity prices of NFCs in the United States were more resilient than those in the euro area owing to the strong macroeconomic momentum, which was in part related to the procyclical fiscal stimulus.

Chart 12

Equity market indices in the euro area and the United States



Source: Thomson Reuters Datastream.
Notes: The EURO STOXX banks index and the Datastream market index for NFCs are shown for the euro area; the S&P banks index and the Datastream market index for NFCs are shown for the United States. The latest observations are for 31 December 2018.

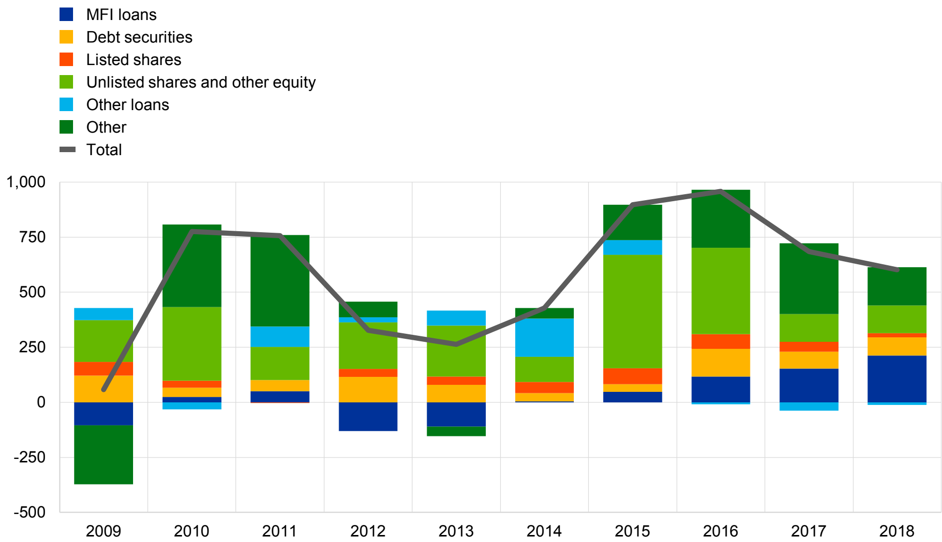
Financing conditions supported business investment

Overall, favourable financing conditions for NFCs continued to support business investment in 2018, although NFCs' external financing flows decreased somewhat (see Chart 13). This decrease mainly reflected a moderation in "other" sources of financing (including inter-company loans and trade credit). At the same time, the net issuance of listed shares, unlisted shares and other equity was dampened by special factors and the relatively high cost of equity financing. Notwithstanding a gradual increase in corporate bond spreads over the course of 2018, debt securities issuance continued to be supported by the corporate sector purchase programme (CSPP), which was introduced in June 2016 (see Box 3). Moreover, the annual growth rate of bank loans to NFCs increased further in 2018. The recovery in loan growth has been supported by the significant decline in bank lending rates across the euro area since mid-2014 (see Section 2.1), which continued in 2018. This was in no small part due to the ECB's non-standard monetary policy measures, which have brought about overall improvements in the supply of and demand for bank loans. In addition, banks have made progress in consolidating their balance sheets, although the volume of non-performing loans remained high in some countries.

Chart 13

Net flows of external financing to non-financial corporations in the euro area

(annual flows; EUR billions)



Sources: Eurostat and ECB.
Notes: "Other loans" include loans from non-MFIs (other financial institutions, insurance corporations and pension funds) and from the rest of the world. MFI and non-MFI loans are adjusted for loan sales and securitisations. "Other" is the difference between the total and the instruments listed in the chart. It includes inter-company loans and trade credit. The latest observations are for the third quarter of 2018.

Household wealth underpinned private consumption

Turning to households, their net wealth increased in the first three quarters of 2018, thus underpinning private consumption. In particular, continuous house price increases resulted in significant valuation gains on households' real estate holdings. At the same time, decreases in share prices led to valuation losses on households' financial asset holdings. While the annual growth rate of bank loans to households for house purchase remained moderate from a historical perspective, loan origination was strong.[13] Household gross indebtedness – measured as a percentage of household nominal gross disposable income – stood well above its average pre-crisis level.

M3 growth was increasingly supported by credit growth

Overall, growth of loans to the private sector continued on the gradual upward trend observed since the beginning of 2014. The annual growth rate of MFI (monetary financial institution) loans to the private sector (adjusted for loan sales, securitisation and notional cash pooling) increased to 3.4% in December 2018, from 2.9% in December 2017 (see Chart 14). Credit growth therefore consolidated its role as a significant driver of broad money growth (see the blue parts of the bars in Chart 15), which nevertheless moderated compared with the steady pace of around 5% observed since mid-2015 (see Chart 14). Annual M3 growth stood at 4.1% in December 2018, compared with 4.6% at the end of 2017. The reduction in Eurosystem net asset purchases (from €80 billion to €60 billion in April 2017, to €30 billion in January 2018, to €15 billion in October 2018 and then to zero at the end of December 2018) has meant that the asset purchase programme had a smaller positive impact on M3 growth (see the red parts of the bars in Chart 15). At the same time, net government bond sales by euro area MFIs excluding the Eurosystem dampened M3 growth (see the light green parts of the bars in Chart 15).

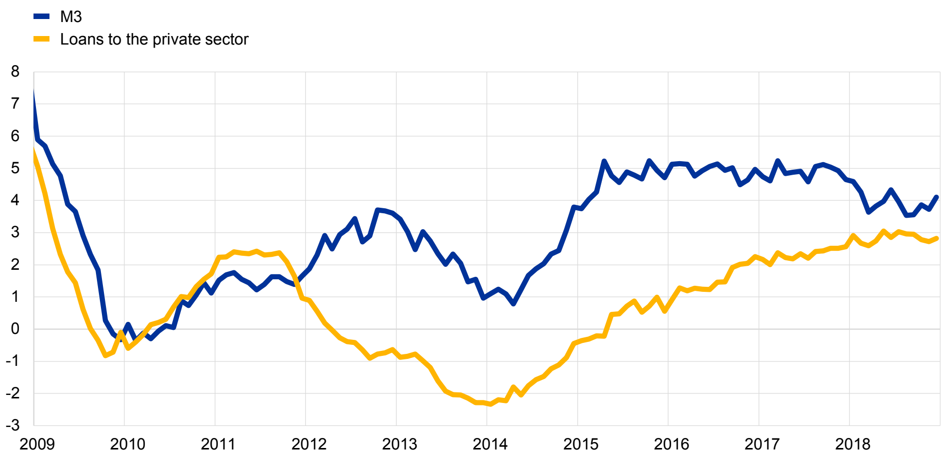
[13] See the box entitled "Developments in mortgage loan origination in the euro area", *Economic Bulletin*, Issue 5, ECB, 2018.

Despite the widening interest rate differential vis-à-vis non-euro area assets, the contribution from net external assets turned positive in net terms in October 2018 (see the yellow parts of the bars in Chart 15).

Chart 14

M3 and loans to the private sector

(annual percentage changes)

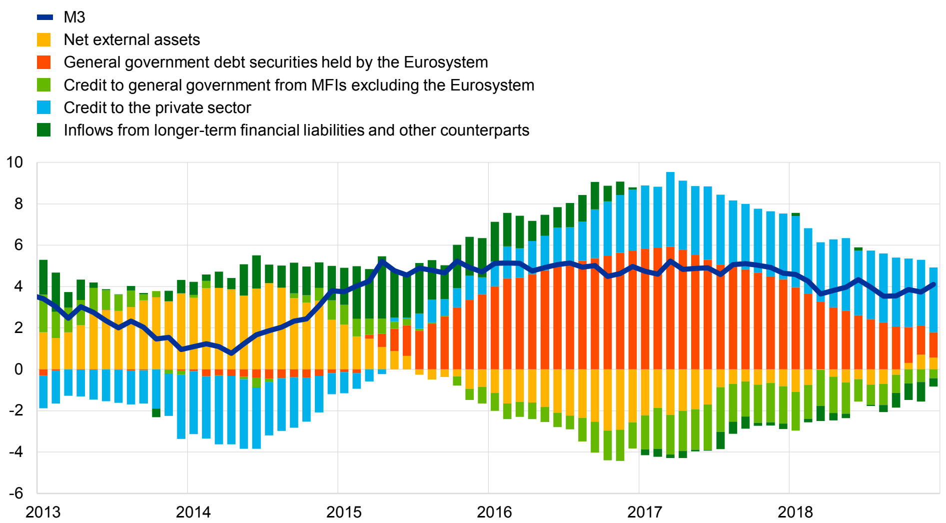


Source: ECB.

Chart 15

M3 and its counterparts

(annual percentage changes; contributions in percentage points; adjusted for seasonal and calendar effects)



Source: ECB.
Notes: Credit to the private sector includes MFI loans to the private sector and MFI holdings of securities issued by the euro area non-MFI private sector. As such, it also covers the Eurosystem's purchases of non-MFI debt securities under the CSPP. The latest observations are for December 2018.

M3 was supported by overnight deposits

Growth in M3 continued to be driven by its most liquid components, given the low opportunity cost of holding liquid deposits in an environment characterised by very low interest rates and a flat yield curve. Growth in M1, which benefited from the elevated growth of overnight deposits held by both households and NFCs, declined as well and stood at 6.6% in December 2018, compared with 8.7% in December 2017.

2 Monetary policy: patience, prudence and persistence remain paramount

On the grounds of substantial progress towards a sustained adjustment in inflation, together with the underlying strength of the euro area economy and well-anchored inflation expectations, the monthly pace of net asset purchases under the asset purchase programme (APP) was gradually reduced throughout 2018 and the net purchases finished at the end of the year. Nevertheless, monetary policy remained patient, prudent and persistent and retained the ample degree of accommodation that was still needed to ensure the continued convergence of inflation to levels below, but close to, 2% over the medium term. Accommodation was provided by the residual net asset purchases, by the sizeable stock of acquired assets and the associated reinvestments, and by forward guidance on the key ECB interest rates, which remained at historical lows. At the end of 2018 monetary policy assets accounted for 72% of the Eurosystem's balance sheet. The size of the balance sheet reached a historical high of €4.7 trillion. Risks related to the large balance sheet continued to be mitigated by the ECB risk management framework.

2.1 Winding-down of net asset purchases, while keeping policy accommodation ample

The monthly pace of net asset purchases under the APP was reduced from the start of 2018 on account of an increasingly robust and broad-based economic expansion

By the end of 2017 the euro area economy was experiencing an increasingly robust and broad-based economic expansion. Strong external demand contributed to growth, and increasing domestic demand underpinned the expansion, supported by employment gains, rising household wealth and corporate profitability, as well as very favourable financing conditions. Underlying price pressures remained subdued, but the steady absorption of economic slack gave grounds for increased confidence in a sustained adjustment in the path of inflation. On this basis, the Governing Council announced in October 2017 that it intended to reduce monthly purchase volumes under the APP from the beginning of 2018.

Accordingly, the monthly pace of net asset purchases under the APP was reduced from €60 billion to €30 billion as of January 2018. The Governing Council anticipated that the new monthly pace would run until the end of September 2018, or beyond, if necessary, and in any case until it saw a sustained adjustment in the path of inflation towards levels that are below, but close to, 2% over the medium term.

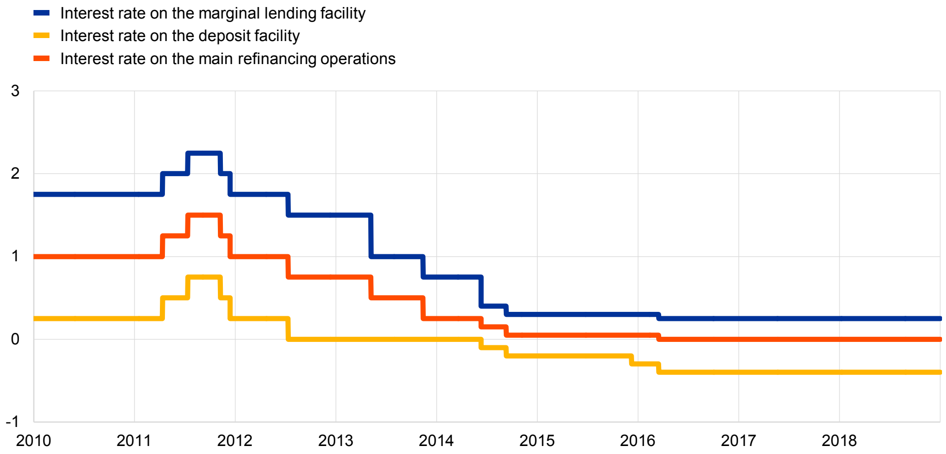
Low key policy rates, ongoing net asset purchases and reinvestment of principal payments continued to keep policy accommodation ample

At the same time, the economic outlook and the path of inflation remained conditional on the continued support from the Governing Council's policy measures. Monetary accommodation was provided by the ongoing net asset purchases. Moreover, the interest rate on the main refinancing operations and on the marginal lending facility and the deposit facility remained unchanged, at 0.00%, 0.25% and −0.40% respectively (see Chart 16). The monetary stimulus was further supported by the Governing Council's forward guidance: key policy rates were expected to remain at

their present levels for an extended period of time, and well past the horizon of net asset purchases. Additionally, the Governing Council intended to reinvest the principal payments from maturing securities purchased under the APP for an extended period of time after the end of net asset purchases, and in any case for as long as necessary.

Chart 16
Key ECB interest rates

(percentages per annum)



Source: ECB.
Note: The latest observations are for 31 December 2018.

Despite some moderation from the very strong growth performance in 2017 on account of a weakening in export demand, domestic demand remained solid, supporting the broad-based expansion of the euro area economy through the first half of 2018. While risks of heightened financial market volatility and uncertainties relating to global factors, including protectionism, had gained prominence, the risks surrounding the euro area growth outlook remained broadly balanced.

High levels of capacity utilisation, labour market tightness and rising wage growth supported the further build-up of domestic price pressures. Measures of underlying inflation remained generally muted, but had increased from earlier lows. The June 2018 Eurosystem staff macroeconomic projections were consistent with a gradual convergence of inflation towards levels below, but close to, 2% over the medium term. Meanwhile, uncertainty surrounding the inflation outlook had been receding significantly and the risk of deflation had disappeared.

Confidence in the sustained convergence in the path of inflation

At its June meeting, the Governing Council assessed that progress towards a sustained adjustment in inflation had been substantial. The underlying strength of the euro area economy along with well-anchored inflation expectations provided grounds for confidence that the sustained convergence of inflation would continue, even after a gradual winding-down of net asset purchases.

In this context, the Governing Council at its June meeting decided to confirm that the Eurosystem would continue to make net asset purchases under the APP at a monthly pace of €30 billion until the end of September 2018. It was anticipated that, after

September 2018, subject to incoming data confirming the medium-term inflation outlook, net asset purchases would be reduced to €15 billion a month for the period from October to December. After December net asset purchases were anticipated to end.

Recalibrated policy communication maintained monetary policy stimulus

At the same time, in the light of prevailing uncertainties, patience, prudence and persistence continued to be paramount as underlying price pressures remained contingent on a very substantial degree of monetary policy accommodation. Accordingly, credible and effective forward guidance on the use of the remaining policy instruments was provided as a means of further supporting the sustained convergence of inflation towards the ECB's inflation aim:

- The Governing Council enhanced its forward guidance on the future path of policy rates: key policy rates were expected to remain at their then prevailing levels at least through the summer of 2019, and in any case for as long as necessary to ensure the continued sustained convergence of inflation to levels that are below, but close to, 2% over the medium term. Adding an explicit date-based and state-contingent component to the guidance provided greater clarity on the future path of policy interest rates, thereby anchoring policy rate expectations more firmly to support the financial conditions underpinning a continued convergence of inflation towards the inflation aim. The state-contingent component of the forward guidance, explicitly linking a first policy rate rise to inflation evolving along a sustained adjustment path, was consistent with a forward-looking and medium-term-oriented monetary policy strategy and underscored the credibility of the Governing Council's commitment to its price stability objective. At the same time, the enhanced rate forward guidance maintained adequate policy flexibility.
- Moreover, forward guidance on the reinvestment of the principal payments from maturing securities purchased under the APP was reconfirmed. The reinvestment horizon would continue for an extended period of time after the end of net asset purchases, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.

In the light of still prevailing uncertainties and only gradually rising underlying inflation, monetary policy had to remain patient, prudent and persistent. Even if the net flows under the APP were coming to an end, monetary policy would have to remain highly accommodative. Meanwhile, the June decision initiated a rotation from net asset purchases towards the policy interest rates and forward guidance on their likely future evolution as a means of steering the monetary policy stance. All in all, communication had to be carefully balanced between anticipating a termination of net asset purchases by the end of 2018 and highlighting the continued commitment to provide sufficient monetary stimulus for as long as necessary.

Throughout the autumn new information came in weaker than expected, reflecting softer external demand but also some country and sector-specific factors. While some of these factors were likely to unwind, others could indicate a moderation in the growth momentum. At the same time, the underlying strength of domestic demand continued

to underpin the expansion of the euro area economy and gradually rising inflation pressures. Domestic cost pressures continued to strengthen and broaden, amid high levels of capacity utilisation and tightening labour markets, which pushed up wage growth. Overall, risks surrounding the growth outlook were still assessed as broadly balanced. Nevertheless, the balance of risks was moving to the downside owing to geopolitical factors, the threat of protectionism, vulnerabilities in emerging markets and financial market volatility, which had gained more prominence during the summer and remained prominent towards the end of the year.

The APP ended, but monetary policy needed to remain very accommodative

In December, on the basis of incoming information, the Governing Council reviewed the economic outlook and concluded that the overall assessment broadly confirmed the outlook from June. The underlying strength of domestic demand continued to support confidence that the sustained convergence of inflation to the ECB's aim was proceeding and would be maintained even after the end of net asset purchases. On this basis, the Governing Council found it appropriate to end net asset purchases under the APP in December 2018, as previously anticipated. At the same time, the continued inflation convergence still required monetary policy to be patient, prudent and persistent. Therefore, the forward guidance on reinvestment was enhanced. Accordingly, the Governing Council intended to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it starts raising the key ECB interest rates, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation. Linking the reinvestment horizon to the interest rate lift-off confirmed that the key ECB interest rates and the associated forward guidance on their likely future evolution would remain the primary tool to adjust the monetary policy stance going forward. The rate forward guidance, reinforced by the reinvestments of the sizeable stock of acquired assets, would provide the necessary degree of accommodation for the sustained convergence of inflation towards levels that are below, but close to, 2% over the medium term.

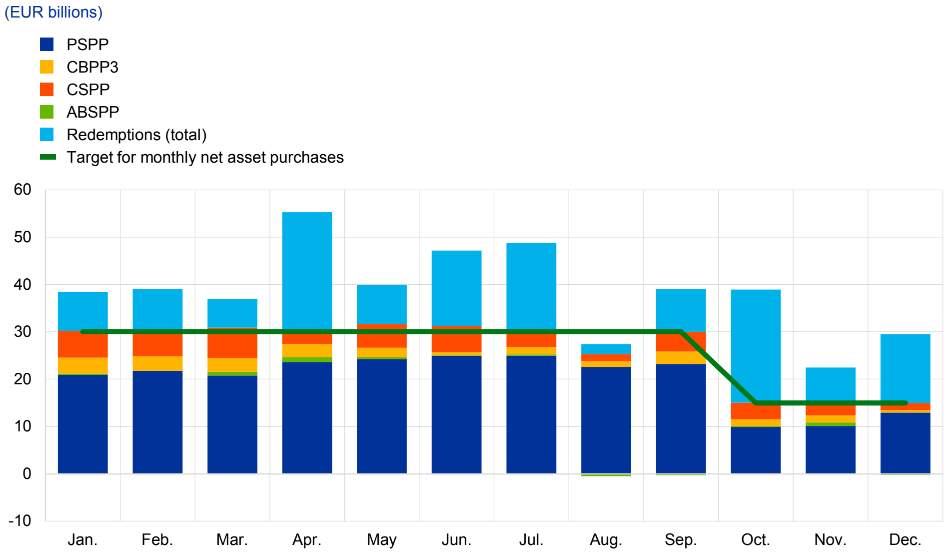
Policy measures continued to ensure very favourable financing conditions and support the economic expansion

Smooth implementation of net asset purchases

The implementation of the APP proceeded smoothly, both in the public sector purchase programme (PSPP) and in the private sector purchase programmes, encompassing the asset-backed securities purchase programme (ABSPP), the corporate sector purchase programme (CSPP) and the third covered bond purchase programme (CBPP3). Monthly net purchase volumes were, on average, in line with the monthly targets set by the Governing Council, at €30 billion per month from January to September and at €15 billion per month from October to December (see Chart 17). Net purchase volumes were below the monthly target in August due to seasonal fluctuations in market liquidity, but this was offset by slightly higher purchase volumes during the rest of the year. At the individual country level, redemptions of debt securities held in the various programme portfolios caused sizeable fluctuations in gross monthly purchases. Overall, net monthly purchases deviated only marginally from the target volumes in relative terms. The stock of PSPP holdings at year-end was broadly in line with the envisaged country allocation guided by the capital key. The

implementation of the PSPP had not adversely affected euro area sovereign bond market liquidity conditions (see Box 2). The targeted longer-term refinancing operations (TLTROs) (see Section 2.2) contributed to favourable financing conditions, supporting the continued adjustment in the path of inflation.

Chart 17
Monthly net asset purchases and redemptions under the APP in 2018



Source: ECB.
Notes: Monthly net purchases at book value; monthly actual redemption amounts. Principal redemptions on securities purchased under the PSPP are reinvested by the Eurosystem in a flexible and timely manner in the month they fall due on a best-efforts basis, or in the subsequent two months if warranted by market liquidity conditions.

Box 2
Euro area sovereign bond market liquidity and implementation of the public sector purchase programme

The liquidity of euro area sovereign bond markets is important for the transmission of the ECB's monetary policy. In particular, a liquid market fosters the link between the ECB's monetary policy decisions, the yield curve, financial asset prices in general, and the overall funding cost and allocation of capital in the economy. The need to closely monitor the liquidity of sovereign bond markets has increased since the launch of the ECB's PSPP, under which the Eurosystem has purchased a significant share of outstanding euro area sovereign bonds. Against this background, this box presents two of the market liquidity indicators that the ECB monitors regularly. Overall, these indicators suggest that liquidity conditions in sovereign bond markets did not react markedly to the start of the PSPP or to changes in the amount of monthly purchases.

A liquid market is typically characterised as one in which the execution of a standard transaction has a limited impact on prices. In other words, a liquid market has "deep" order books, which are quickly replenished once a trade has been executed. As a result, price changes following a trade would be minimal and temporary. Naturally, if an executed trade is believed to provide new information about the fundamental value of the asset being traded, there would be a commensurate adjustment in quoted ask and bid prices, but the order book around the new levels would still remain deep.

Market liquidity indicators commonly focus on one or more aspects of the cost of transactions, market depth and/or resiliency. The simplest indicator is the quoted bid-ask spread, which provides information on how costly a transaction is expected to be. More informative indicators can be constructed by combining this spread information with, for example, order book depth, which is a gauge of the volume of transactions that the market can comfortably absorb at a given point in time. Measures of market depth are typically based on information obtained from limit order books[14], which are the real-time volume and price schedules available to traders. Resiliency is a function of market dynamics, such as how long it takes for order books to be refilled after a trade has been executed, i.e. it focuses on the time dimension of market liquidity.

This box looks at euro area sovereign bond market liquidity based on an order book liquidity indicator[15] and an execution-based liquidity indicator[16]. Although these indicators are based on different sets of market data (limit order books and quotes respectively), they mainly focus on the cost and depth dimensions of liquidity.

Both the order book liquidity indicator and the execution-based liquidity indicator suggest that the liquidity situation in euro area sovereign bond markets has not deteriorated since the start of the PSPP (see Chart A). While both indicators have displayed quite some volatility within the observed time period, they have not recorded a sustained upward trend, notwithstanding the significant build-up of PSPP holdings over time. In the same vein, the indicators have generally not displayed a marked reaction to changes in the amount of monthly purchases under the PSPP, even though the aggregate may mask some cross-country heterogeneity.

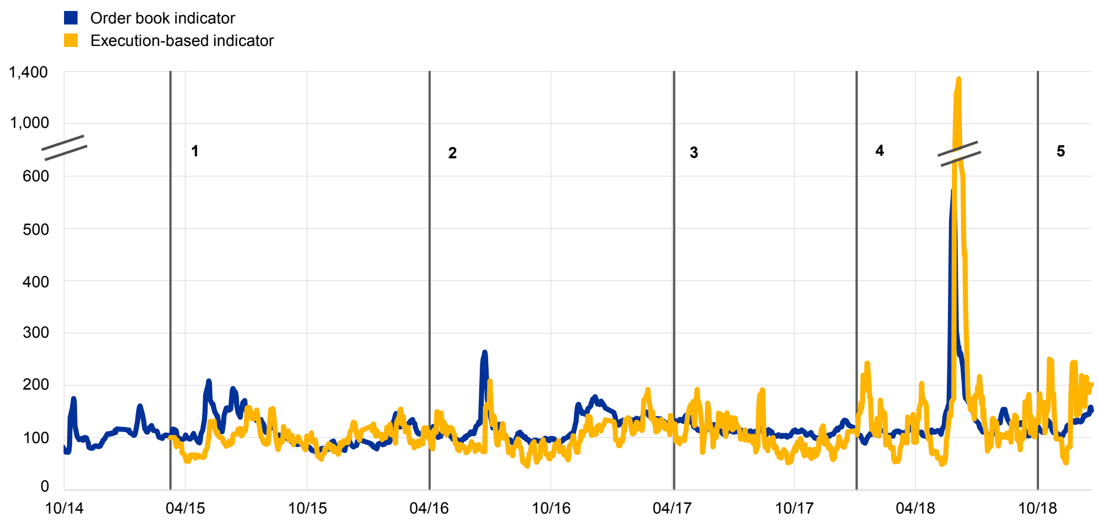
[14] A limit order book is a trading system in which bids and asks submitted by market participants are stored in a queue and executed in a predefined sequence.

[15] The order book liquidity indicator is based on data on bid-ask spreads and quoted quantities obtained from limit order books. It is calculated for a particular bond as the sum of the five best quotes on both the ask side and the bid side of the order book, divided by the sum of the corresponding quoted volumes.

[16] The execution-based liquidity indicator uses information derived from firm quotes for transactions under the PSPP. For a given bond, this indicator is defined as the spread between the two best quotes received in the over-the-counter (OTC) market, divided by the duration of the bond. Only quotes that actually result in a transaction are considered.

Chart A
Euro area sovereign bond market liquidity indicators since the start of the PSPP

(index: 100 = 9 March 2015)



Sources: Bloomberg, EuroMTS Ltd and ECB calculations.
Notes: An increase (decrease) in the indicators implies a deterioration (improvement) in the liquidity situation. The chart shows the five-day moving average of the indicators. The order book indicator is a euro area-wide GDP-weighted average of ten-year sovereign bonds and the execution-based indicator is a volume-weighted average for sovereign bonds traded under the PSPP. They are normalised to 100 on 9 March 2015, when purchases under the PSPP began. The vertical lines denote the following volume changes in asset purchases under the PSPP: (1) the start of the programme, with a monthly volume of €60 billion (9 March 2015); (2) the increase in net monthly purchases to €80 billion (1 April 2016); (3) the decrease in net monthly purchases to €60 billion (3 April 2017); (4) the decrease in net monthly purchases to €30 billion (2 January 2018); and (5) the decrease in net monthly purchases to €15 billion (1 October 2018). The latest observations are for 21 December 2018. Values above 600 are scaled down by a factor of 4.

Chart A shows that these liquidity indicators tend to spike around political and economic events associated with an expected deterioration in market liquidity. For instance, spikes were observed during the "Bund tantrum"[17] period (commencing on 28 April 2015) and following the United Kingdom's referendum on EU membership (23 June 2016). The presidential elections in the United States (8 November 2016) and France (23 April 2017) were also marked by higher readings of these indicators. The largest spike in illiquidity can, however, be observed during the period of political tensions related to the formation of the new Italian government (period commencing on 28 May 2018), when liquidity deteriorated especially in the Italian market. These spikes reflect mostly country-specific deteriorations in liquidity with limited spillovers to other markets. Moreover, liquidity usually deteriorates during the summer and around the year-end, although this is less obvious in the chart, given the wide scale. Finally, movements in the execution-based indicator resemble those seen in the order book indicator, but appear to reflect more noise. A composite indicator constructed using robust weighting methodologies or aggregating across a broad set of measures could mitigate the noise in the individual measures.

Banks' very favourable financing conditions were passed on to firms and households

The accommodative monetary policy stance and the strengthening of bank balance sheets continued to contribute to low bank funding costs. Despite an increase in the dispersion of funding costs across euro area countries in the second half of 2018, these costs remained well below the levels seen prior to the adoption of the ECB's credit easing measures in June 2014 (see Chart 18). Banks' very favourable financing conditions were passed on to the wider economy, with borrowing conditions for firms

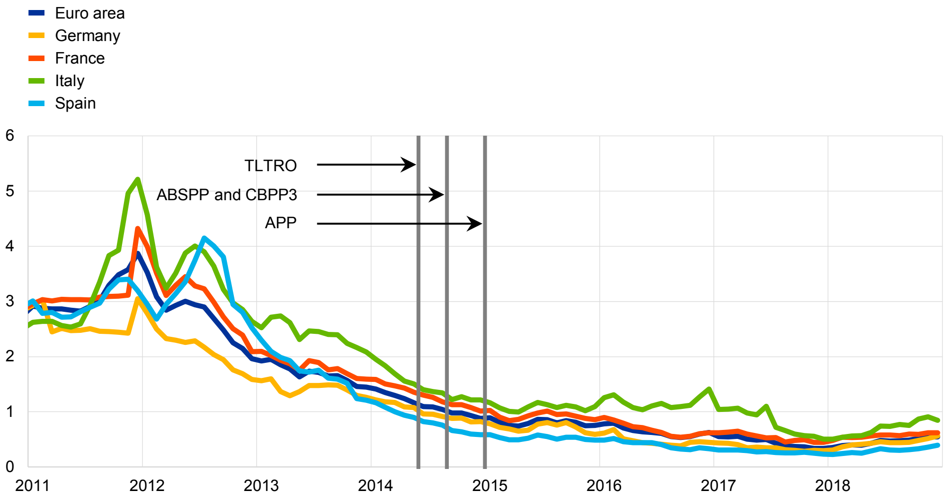
[17] The "Bund tantrum" refers to an abrupt increase in German sovereign bond yields, when the ten-year yield increased by 82 basis points (from 0.16% to 0.98%) within a period of around six weeks.

and households continuing to be attractive across the euro area. Bank lending rates for non-financial corporations (NFCs) and households remained close to their historical lows. Between the beginning of June 2014 and December 2018, they declined by around 130 and 110 basis points, respectively, which is significantly more than the change in market reference rates (see Chart 19).

Chart 18

Composite cost of debt financing for banks

(composite cost of deposit and unsecured market-based debt financing; percentages per annum)

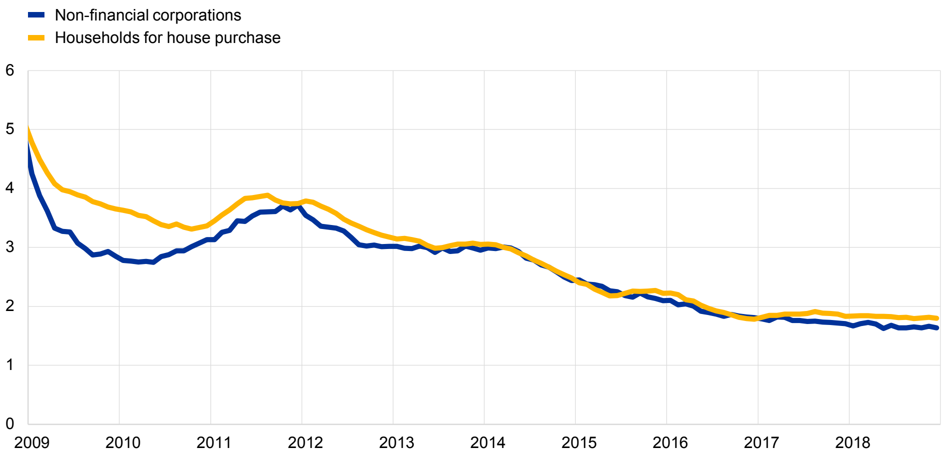


Sources: ECB, Markit iBoxx and ECB calculations.
Note: The composite cost of deposits is calculated as an average of new business rates on overnight deposits, deposits with an agreed maturity and deposits redeemable at notice, weighted by their corresponding outstanding amounts.

Chart 19

Composite bank lending rates for non-financial corporations and households

(percentages per annum)



Source: ECB.
Note: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes.

Market-based funding costs for NFCs also remained very favourable, supported by the continued spread-compressing impact of the CSPP net purchases (see Box 3). Nevertheless, investment-grade NFC bond spreads widened gradually and steadily

throughout 2018 from post-crisis lows due to increasing uncertainties surrounding the euro area and global growth outlook.

Credit flows to the private sector continued to benefit from the very favourable financing conditions. The growth in bank lending to NFCs and households continued on the gradual upward trend observed since the beginning of 2014 (see Section 1.4). Net debt securities issuance by NFCs continued to be supported by the CSPP despite moderating somewhat compared with last year (see Box 3). According to the ECB's securities issues statistics[18], net new issues denominated in euro amounted to €56 billion in the first eleven months of 2018, compared with €91 billion in the same period of 2017. Net new issues denominated in other currencies amounted to −€3 billion in the first eleven months of 2018, and −€7 billion in the same period of 2017, which is consistent with the CSPP providing an incentive to euro area NFCs to issue new debt in euro and redeem debt in other currencies.

Low policy rates and the APP increased lending volumes and eased banks' conditions on new loans

Banks continued to report an easing of credit standards and overall terms and conditions on new loans, supported by the ECB's monetary policy measures. According to the euro area bank lending survey, the APP continued to have an easing impact on banks' overall terms and conditions on new loans to enterprises and households. Moreover, the ECB's monetary policy measures had a positive impact on bank lending volumes. Low interest rates and the ongoing economic expansion in the euro area continued to support demand for credit (see Section 1.4). According to the latest Survey on the Access to Finance of Enterprises (SAFE)[19], the availability and conditions of external financing for small and medium-sized enterprises (SMEs) further improved in 2018, supported by the substantial monetary policy accommodation and the enhanced financing conditions of SMEs (see Box 3).

Box 3
The effect of the corporate sector purchase programme on the financing of non-financial corporations in the euro area

The aim of the corporate sector purchase programme, which forms part of the ECB's asset purchase programme, is to ease the financing conditions of the euro area real economy. ECB analysis summarised in this box suggests that the CSPP led to a significant easing in financing conditions for euro area non-bank corporations. It did so by contributing to a decline in corporate bond spreads, as well as an improvement in the supply conditions in the primary corporate bond market. Furthermore, the CSPP may have contributed to increasing bank credit to NFCs that do not tap the corporate bond market.[20]

[18] The securities issues statistics are produced by the ECB based on monthly data reported by the national central banks of the euro area. They cover data on outstanding amounts, issuances, redemptions and growth rates of debt securities and listed shares. Data are broken down by issuer country and sector, instrument type, original maturity, coupon type and currency of denomination. The latest available observation is for November 2018.

[19] See "Survey on the Access to Finance of Enterprises in the euro area – April to September 2018", ECB, November 2018.

[20] This box is based on the article entitled "The impact of the corporate sector purchase programme on corporate bond markets and the financing of euro area non-financial corporations", *Economic Bulletin*, Issue 3, ECB, 2018.

The CSPP is part of the APP

The CSPP consists of purchases by the Eurosystem of investment-grade euro-denominated bonds issued by non-bank corporations (i.e. non-financial corporations and insurance corporations) established in the euro area. It was announced on 10 March 2016 and purchases started on 8 June 2016. Since then the Eurosystem has purchased debt securities issued by NFCs in both the primary and the secondary markets. Those securities had to be eligible as collateral for Eurosystem refinancing operations and denominated in euro. By the time the net asset purchases under the APP ended in December 2018, the Eurosystem held €178 billion of corporate bonds, which represented slightly less than 7% of the total outstanding assets held as a consequence of APP purchases.

Impact on NFC financing costs: the tightening of corporate bond spreads

Since the announcement of the CSPP in March 2016, corporate bond spreads steadily tightened until the end of 2017, only to climb back up again gradually in the course of 2018 (see Chart A). Econometric analysis[21] shows that the steady decline of corporate bond spreads for CSPP-eligible bonds between mid-2016 and the end of 2017 can largely be attributed to the CSPP. The decline in eligible corporate bond spreads, in turn, induced portfolio rebalancing effects and resulted in a decline also in the spreads on corporate bonds that are not eligible for purchase under the CSPP[22]. In 2018 both global and domestic euro area uncertainties more than counterbalanced the impact of the CSPP and contributed to the gradual increase of credit risk and, therefore, of corporate bond spreads. The cessation of net asset purchases under the CSPP at the end of 2018, and the removal of the demand pressure which it implied, coincided with an increase in credit risk premia and corporate bond valuations towards values observed before the announcement of the programme.

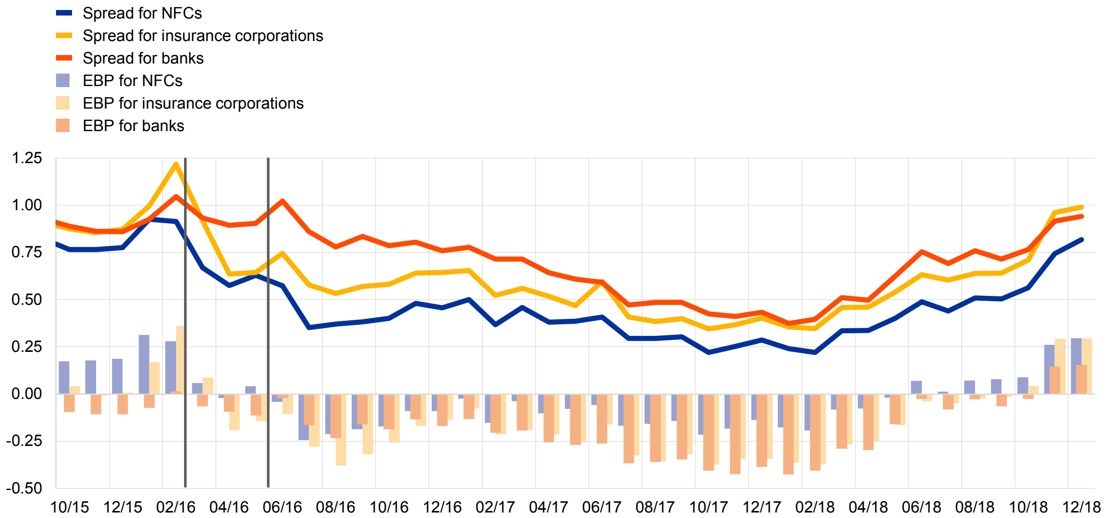
[21] For a description of the econometric methodology employed, see the article entitled "The impact of the corporate sector purchase programme on corporate bond markets and the financing of euro area non-financial corporations", *Economic Bulletin*, Issue 3, ECB, 2018, footnote 61.

[22] For example, bonds issued by banks, high-yield bonds and bonds with an ineligible coupon structure. The lower yields and spreads of bonds purchased by the Eurosystem provide an incentive for investors to rebalance their portfolios towards holdings of assets characterised by a similar risk profile but with higher expected returns.

Chart A

Investment-grade corporate bond spreads and "excess bond premia" in the euro area

(monthly data; percentage points)



Sources: Merrill Lynch indices and ECB calculations.
Notes: The "excess bond premium" (EBP) is the deviation of the corporate credit spread from the measured default risk of the issuer. The series shown only includes investment-grade bonds. The vertical lines indicate the Governing Council meetings of 10 March 2016 and 2 June 2016. See De Santis, R.A., "Credit spreads, economic activity and fragmentation", *Working Paper Series*, No 1930, ECB, July 2016. The latest observations are for December 2018.

Impact on NFC debt securities issuance

The CSPP also contributed to improving supply conditions in primary corporate bond markets, particularly among eligible issuers. Net issuance by NFCs picked up in March 2016, coinciding with the CSPP announcement and the decline in corporate bond spreads. Since then it has remained stronger than in previous years. Furthermore, the newly issued CSPP-eligible bonds carried a longer maturity, which contributed to lengthening significantly the average residual maturity of outstanding senior unsecured investment-grade bonds issued by NFCs. Lastly, empirical evidence suggests that the CSPP continued to foster NFC issuance of new eligible bonds denominated in euro rather than in other currencies. The low-yield environment and low corporate bond spreads also seem to have fostered issuance by lower-rated issuers.

Impact on the NFC funding structure

The rising NFC bond issuance observed over the past two and a half years reflects, at least initially, a shift by some firms from loans to market-based debt funding.[23] ECB analysis covering the period from end-2015 until mid-2017 shows that in a large sample of euro area NFCs, those firms issuing bonds that were eligible for the CSPP recorded a rise in the share of bonds and a fall in the share of long-term loans in their total debt liabilities.

This micro evidence is confirmed by the aggregate financial accounts of euro area NFCs. Between the announcement of the CSPP and mid-2017 the share of new bank loans taken out by euro area firms relative to that of new net debt securities issued by them declined on an annual basis. Thus, euro area NFCs shifted their funding structure towards debt instruments. Despite this, since mid-2016

[23] See Grosse-Rueschkamp, B., Steffen, S. and Streitz, D., "Cutting out the middleman – The ECB as corporate bond investor", SSRN, October 2017, and Arce, O., Gimeno, R. and Mayordomo, S., "Making room for the needy: The credit-reallocation effects of the ECB's corporate QE", *Working Papers*, No 1743, Banco de España, 2017.

the net flow of bank loans to the NFC sector has been positive and has even accelerated. From mid-2017 euro area NFCs gradually reversed the temporary substitution of debt securities for bank loans and the relative share of new bank loans taken out increased again until the end of 2018.

Impact on banks' loan supply

Finally, when combining the data with survey evidence, it seems that the CSPP may have contributed to freeing up bank balance sheet capacity that was subsequently used to expand lending to CSPP-ineligible (mainly smaller) firms.[24] The Survey on the Access to Finance of Enterprises shows that the net percentage of small and medium-sized enterprises reporting improvements in the willingness of banks to provide credit, which has exhibited an increasing trend since 2014, increased further somewhat in the first half of 2016, when the CSPP was introduced. This effect seems most evident in France where companies have accounted for a large share of the higher bond issuance seen since the CSPP announcement.

Monetary policy measures since 2014 contributed substantially to the improved economic performance of the euro area

The ample degree of monetary policy accommodation introduced since 2014 has contributed substantially to the improvement in the economic performance of the euro area, supporting the convergence of inflation towards the Governing Council's inflation aim. Private consumption was supported by ongoing employment gains, which – in turn – partly reflected past labour market reforms, and by growing household wealth. Business investment was fostered by the favourable financing conditions, rising corporate profitability and solid demand. Housing investment remained robust. Considering all the monetary policy measures taken since mid-2014, the overall impact on euro area real GDP growth and euro area inflation is estimated to be – in both cases – around 1.9 percentage points cumulatively between 2016 and 2020.[25]

2.2 Eurosystem balance sheet dynamics towards the end of net asset purchases

Since the onset of the global financial crisis in 2007-08 the Eurosystem has taken a variety of standard as well as non-standard monetary policy measures, which have had a direct impact on the size and composition of the Eurosystem's balance sheet over time. The non-standard measures have included collateralised lending operations to provide funding to counterparties with an initial maturity of up to four years, as well as purchases of assets issued by private and public entities (under the APP), in order to improve the transmission of monetary policy and ease financing conditions in the euro area. Over the course of 2018 the Eurosystem's balance sheet continued to grow on account of these non-standard policy measures and, by the end

24 In the literature, there is econometric evidence of a stronger rise in the lending volumes of banks with a large share of CSPP-eligible borrowers in their portfolios than in those of banks with a smaller share of such borrowers; see Grosse-Rueschkamp, Steffen and Streitz, op. cit. There is also econometric evidence of a surge in lending to CSPP-ineligible firms in Spain around the time of the CSPP announcement; see Arce, Gimeno and Mayordomo, op. cit.

25 For an extended discussion of the impact of the APP on the euro area economy, see the article entitled "Taking stock of the Eurosystem's asset purchase programme after the end of net asset purchases", *Economic Bulletin*, ECB, forthcoming.

of 2018, its size had reached a historical high of €4.7 trillion, an increase of €0.2 trillion compared with the end of 2017.

Further expansion of the Eurosystem's balance sheet

The APP led to a further expansion of the Eurosystem's balance sheet in 2018, although at a somewhat lower rate than in previous years as monthly net asset purchases were reduced (see Section 2.1). At the end of 2018 monetary policy-related items on the assets side amounted to €3.4 trillion, accounting for 72% of the total assets on the Eurosystem's balance sheet (up from 70% at the end of 2017). These monetary policy-related assets include loans to euro area credit institutions, which accounted for 16% of total assets (down from 17% at the end of 2017), and assets purchased for monetary policy purposes, which represented around 56% of total assets (up from 53% at the end of 2017) (see Chart 20). Other financial assets on the balance sheet mainly consisted of: (i) foreign currency and gold held by the Eurosystem; (ii) euro-denominated non-monetary policy portfolios; and (iii) emergency liquidity assistance provided by some Eurosystem national central banks (NCBs) to solvent financial institutions facing temporary liquidity problems. These other financial assets are subject to internal Eurosystem reporting requirements and restrictions arising in particular from the monetary financing prohibition and the requirement that they should not interfere with monetary policy, which are set out in various legal texts.[26]

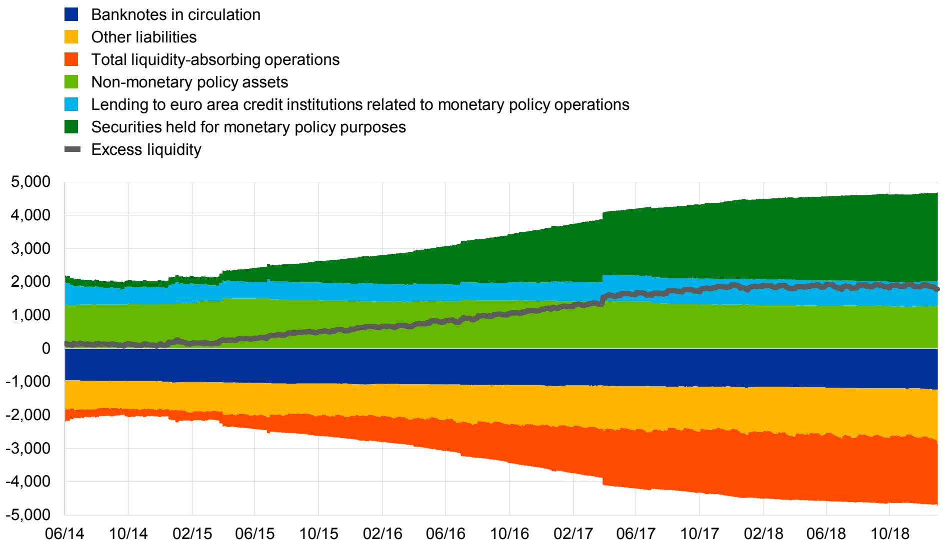
On the liabilities side, the main impact of the continued accommodative monetary policy in 2018 was on counterparties' reserve holdings and recourse to the deposit facility, which remained broadly unchanged at €2 trillion and represented 39% of the liabilities side at the end of 2018, down from 42% at the end of 2017. Banknotes in circulation grew in line with the historical growth trend, but remained unchanged in relative terms at 26% of liabilities compared with the end of 2017. Other liabilities, including capital and revaluation accounts, accounted for 34% (up from 32% at the end of 2017), and in absolute amounts they increased by €0.2 trillion (see Chart 20).

[26] The monetary financing prohibition is laid down in Article 123 of the Treaty on the Functioning of the European Union. For restrictions on non-monetary policy assets, see in particular the ECB Guideline on domestic asset and liability management operations by the national central banks (ECB/2014/9), the Agreement of 19 November 2014 on net financial assets, as well as the Agreement of 17 May 2017 on emergency liquidity assistance.

Chart 20

Evolution of the Eurosystem's consolidated balance sheet

(EUR billions)



Source: ECB.

Notes: Positive figures refer to assets and negative figures to liabilities. The line for excess liquidity is presented as a positive figure, although it refers to the sum of the following liability items: current account holdings in excess of reserve requirements and recourse to the deposit facility.

Average APP portfolio maturity and distribution across assets and jurisdictions

At the end of 2018 APP holdings amounted to €2.6 trillion

The monthly pace of net asset purchases was reduced from €30 billion as of January to €15 billion as of October 2018. At year-end APP holdings[27] amounted to €2.6 trillion.[28]

The ABSPP accounted for 1% (€28 billion), the CBPP3 accounted for 10% (€262 billion) and the CSPP accounted for 7% (€178 billion) of total APP holdings at year-end. Out of the private sector purchase programmes, the CSPP contributed the most to the growth in APP holdings in 2018, with €48 billion of net purchases. CSPP purchases are made based on a benchmark which reflects proportionally all eligible outstanding issues. This implies that market capitalisation provides a weighting for each of the different jurisdictions of issuance within the benchmark.

The PSPP accounted for 82% of total APP holdings

The PSPP accounted for the bulk of the APP, amounting to €2.1 trillion or 82% of total APP holdings at the end of 2018, compared with 83% at the end of 2017. Under the PSPP, the allocation of purchases to jurisdictions is guided by the ECB's capital key. Within the individual allocations assigned to them, the ECB and the euro area NCBs

[27] APP holdings are presented at amortised cost.

[28] The ECB publishes information on developments in APP holdings on a weekly basis. The breakdowns of holdings purchased in the primary and secondary markets under the ABSPP, the CBPP3 and the CSPP are published on a monthly basis. With regard to the CSPP, the publication includes a full list of all holdings, including the names of issuers, the maturity dates and the bond coupon rates, as well as aggregated data on holdings by country of risk, rating and sector. For the PSPP, the ECB provides securities holdings data by country of issuer, including the weighted average maturity (the holdings of securities of supranational issuers are published at an aggregate level).

have flexibility to choose between purchases of central, regional and local government securities, securities issued by certain agencies established in the respective jurisdictions and, if necessary, securities issued by supranational institutions. The weighted average maturity of the PSPP holdings stood at 7.4 years at the end of 2018, somewhat lower than the 7.7 years at the end of 2017, with some variation across jurisdictions.[29]

The Eurosystem reinvests principal payments on the assets purchased under the APP as they mature. The reinvestments under the private sector purchase programmes amounted to €30.9 billion in 2018, while the reinvestments under the PSPP amounted to €116.7 billion.[30] The assets purchased under the PSPP and CSPP continued to be made available for securities lending[31], in order to support bond and repurchase agreement (repo) market liquidity.[32]

Developments in Eurosystem refinancing operations

The outstanding amount of Eurosystem refinancing operations decreased by €30.6 billion since the end of 2017, standing at €733.4 billion at the end of 2018. This can be largely attributed to the voluntary repayments of €4.5 billion and the maturity of €8.9 billion of the TLTRO-I series, as well as to the voluntary repayments of €17.8 billion of the TLTRO-II series. The weighted average maturity of outstanding Eurosystem refinancing operations decreased from around 2.7 years at the end of 2017 to around 1.8 years at the end of 2018. The weighted average TLTRO-II interest rate was −0.3650% (rounded).

2.3 The risk management framework for the APP mitigates financial risks, while supporting the monetary policy objective

Risk efficiency is a key principle of the Eurosystem's risk management function

Three main principles guide asset purchases from a monetary policy perspective. First, the asset purchases should be an effective tool to achieve the ECB's primary objective of maintaining price stability. Second, asset purchases should be proportionate to the policy objectives and market distortions should be avoided. Third, when there are several options to fulfil the policy objectives, the option selected should be efficient both from an operational as well as from a risk perspective. In that context,

29 The Eurosystem aims for a market-neutral asset allocation, purchasing securities across all eligible maturities in all jurisdictions in a way that reflects the composition of the euro area government bond market.

30 The ECB publishes the expected monthly redemption amounts for the APP over a rolling 12-month horizon.

31 See "General APP securities lending framework" for information on securities lending under the CBPP3 and the ABSPP.

32 The ECB publishes the PSPP aggregate monthly average on-loan balance for the Eurosystem and the aggregate PSPP monthly average amount of cash collateral received on a monthly basis.

the Eurosystem's risk management function endeavours to attain risk efficiency: achieving the policy objectives with the lowest amount of risk for the Eurosystem.[33]

Outright asset purchases require specific risk management frameworks

All monetary policy instruments, including outright asset purchases, inherently involve risks which are managed and controlled by the Eurosystem. These risks consist of credit, market, liquidity, operational and legal risks. The outright asset purchases require specific risk management frameworks to limit financial risks which depend on the specific policy objectives and on the features and risk profiles of the asset types involved. Each of these frameworks consists of eligibility criteria, credit assessment and due diligence procedures, pricing frameworks, benchmarks and limits. The risk control frameworks not only serve the purpose of mitigating financial risks, they also contribute to a successful achievement of the policy objectives by steering asset purchases towards a diversified market-neutral asset allocation. In the following, the risk management frameworks governing the implementation of the APP are described. Table 1 summarises the key elements of the frameworks. The risk management frameworks will continue to apply throughout the reinvestment period and for as long as APP holdings are on the Eurosystem's balance sheet.

Table 1

Key elements of the risk management frameworks for the APP

	ABSPP	CBPP3	CSPP	PSPP
Main eligibility criteria	Eligible as collateral for Eurosystem credit operations with location criteria	Eligible as own-use collateral for Eurosystem credit operations	Eligible as collateral for Eurosystem credit operations with exclusion criteria	Eligible as collateral for Eurosystem credit operations including list of eligible agencies and supranationals
Minimum rating	CQS 3	CQS 3	CQS 3	CQS 3
Minimum remaining maturity	None	None	6 months	1 year
Maximum remaining maturity	None	None	30 years	30 years
Issue limits	70% (30% in case of waivers)	70% (30% in case of waivers)	70%, for public undertakings 33%/25% (depending on CAC)	50% for supranational bonds, otherwise 33%/25% (depending on CAC)
Issuer limits	None	Yes	Yes	50% for supranational bonds, otherwise 33%
Credit risk assessments and due diligence procedures	Yes	Yes	Yes	None
Price review (ex post)	Yes	Yes	Yes	Yes

Source: ECB.
Notes: CQS: credit quality step as per the Eurosystem's harmonised rating scale (see Eurosystem credit assessment framework); CAC: collective action clause.

Eligibility requirements for outright asset purchases

Eligibility criteria apply to all asset classes

Only marketable assets which are accepted as collateral for Eurosystem credit operations are eligible for outright asset purchases. The collateral eligibility criteria for Eurosystem credit operations are stated in the general framework for monetary policy instruments. Among other things, eligible assets are required to meet the criteria for credit quality step 3 (CQS 3) on the Eurosystem's harmonised rating scale,

[33] See "The financial risk management of the Eurosystem's monetary policy operations", ECB, July 2015.

e.g. having at least one credit rating[34] provided by an external credit assessment institution (ECAI) accepted within the Eurosystem credit assessment framework (ECAF). Furthermore, assets must be euro-denominated and issued and settled in the euro area. In the case of asset-backed securities (ABSs), the debtors underlying the respective claims must be predominantly located in the euro area.

For assets issued or guaranteed by central governments, the minimum CQS 3 threshold can be waived if the respective jurisdiction is subject to and compliant with an EU/IMF programme as decided by the Governing Council. Assets that are eligible for purchase by virtue of a waiver of the minimum credit quality threshold must meet additional requirements. For example, purchases are not permitted during the review period of such a programme, and can resume only after a positive outcome of the review. For the ABSPP and the CBPP3, such assets must have the maximum achievable rating in the jurisdiction and meet other requirements to mitigate increased risk.

In addition to the eligibility criteria above, specific eligibility criteria apply depending on the programme. For instance, for the PSPP and the CSPP, there are minimum and maximum maturity restrictions in place.[35] For the CSPP, assets issued by credit institutions, or by issuers for which the parent undertaking is a credit institution, are not eligible for purchase. Moreover, for the CSPP and the CBPP3, assets issued by wind-down entities and asset management companies are excluded from purchases. In the CBPP3, the assets must be eligible as collateral for Eurosystem credit operations and, in addition, fulfil the necessary conditions for their acceptance as own-use collateral, i.e. they can be used as collateral by the issuing credit institution.[36] Furthermore, conditional pass-through covered bonds are not eligible for purchase from 1 January 2019. Finally, asset purchases must not circumvent the rules prohibiting the monetary financing of public authorities as set out in Article 123(1) of the Treaty on the Functioning of the European Union.

Credit risk assessment and due diligence

Credit risk assessments and due diligence procedures are conducted on an ongoing basis

For the private sector purchase programmes, the Eurosystem conducts appropriate credit risk assessments and due diligence procedures on the purchasable universe on an ongoing basis. Monitoring frameworks are maintained using certain risk indicators. These assessments and procedures follow the principle of proportionality, where riskier assets are subject to more in-depth analysis. If warranted, additional risk management measures may apply, also subject to the principle of proportionality, in

34 ABSs are required to have at least two credit ratings by an ECAI. ABSs rated below credit quality step 2 have to satisfy additional requirements, which include: (i) no non-performing loans backing the ABS at issuance or added during the life of the ABS; (ii) the cash-flow generating assets backing the ABSs must not be structured, syndicated or leveraged; and (iii) servicing continuity provisions must be in place.

35 For the PSPP, the minimum remaining maturity is one year and the maximum remaining maturity is 30 years. For the CSPP, the minimum remaining maturity is six months and the maximum remaining maturity is 30 years.

36 See Article 138, paragraph 3(b), of Guideline (EU) 2015/510 of the European Central Bank of 19 December 2014 on the implementation of the Eurosystem monetary policy framework (ECB/2014/60) (OJ L 91, 2.4.2015, p. 3).

particular limitations on or suspension of purchases and, in extraordinary cases, even sales of assets, which require a case-by-case assessment by the Governing Council.

Pricing frameworks

The pricing frameworks ensure that purchases are made at market prices

The pricing frameworks for the APP ensure that purchases are made at market prices in order to minimise market distortions and facilitate the achievement of risk efficiency. These frameworks take into account available market prices, the quality of such prices and fair values. Ex post price checks are also conducted in order to assess if the transaction prices at which purchases were made reflected market prices at the time of the transactions.

Under the private sector purchase programmes, asset purchases at a negative yield are permissible if the yield is above the deposit facility rate. Purchases at yields below the deposit facility rate are permissible only under the public sector purchase programme and only to the extent necessary.[37]

Benchmarks

Benchmarks are used to ensure diversification

Benchmarks are used to ensure the build-up of a diversified portfolio and contribute to mitigating risks. The benchmarks for the private sector purchase programmes are based on the market capitalisation of the purchasable universe, i.e. the nominal outstanding amounts of the eligible assets satisfying risk considerations. In the case of the PSPP, the ECB's capital key guides purchases by defining the country allocations of purchases.

Limits

Issue and issuer limits are an effective tool to limit risk concentration

Limit frameworks are in place for the APP. The calibration of issue and issuer limits[38] takes into account policy, operational, legal and risk management considerations. The limits are fine-tuned according to the asset class, with a distinction being made between public sector assets and private sector assets.

PSPP issue and issuer limits are applied to safeguard market functioning and price formation, to limit risk concentration and to ensure that the Eurosystem does not become a dominant creditor of euro area governments. The issue limit for the PSPP is set at 33% of the outstanding amount of the issue, subject to a case-by-case verification that it would not lead to the Eurosystem having a blocking minority for the purpose of collective action clauses (CACs).[39] Otherwise, the issue limit is 25%. The

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37 On 19 January 2017 the Governing Council decided that purchases of assets with a yield to maturity below the deposit facility rate are only permissible under the PSPP and confirmed that no such purchases are foreseen for the CBPP3, ABSPP and CSPP. For further details, see the ECB's website.

38 The issuer limit refers to the maximum share of an issuer's outstanding securities that the Eurosystem could hold.

39 Supranational bonds have an issue and issuer limit of 50%.

issuer limit is set at 33% of the outstanding amount of eligible assets issued by the respective public institution.

For the private sector purchase programmes, the issue limit is set at the higher level of 70%.[40] In the CSPP, lower issue limits apply in specific cases, for example for assets issued by public undertakings, which are dealt with in a manner consistent with the treatment under the PSPP. In addition to these issue limits, issuer limits are applied for the CBPP3 and the CSPP. Particularly for the CSPP, those issuer limits are defined based on a benchmark allocation related to an issuer group's market capitalisation in order to ensure a diversified allocation of purchases. Moreover, lower limits may apply if warranted based on the outcome of the credit risk assessment and due diligence procedures, as explained above.

40 For ABSs and covered bonds eligible for purchase as a result of the waiver of the minimum credit quality requirement, a maximum limit of 30% is applied.

3 Euro area financial sector: increasing bank resilience amid risks

The risk environment confronting the euro area financial sector became more challenging during 2018. On the one hand, several factors supported the financial stability environment, including a growing economy and improving banking sector resilience. On the other hand, increasing downside risks to growth, not least due to increasing trade protectionism, and rising political and policy uncertainty, weighed on the financial stability environment in 2018. Strong risk-taking in financial and real estate markets continued to fuel the build-up of asset price vulnerabilities, while risks continued to build up in the growing non-bank financial sector. In this environment, euro area countries, in consultation with the ECB, implemented a number of macroprudential measures to mitigate and build up resilience to systemic risks. In addition, ECB Banking Supervision took microprudential actions and continued to contribute to a stable European banking sector and a level playing field for all banks in the euro area. Ten years after the outbreak of the global financial crisis, the main regulatory reforms that have contributed to building a more resilient financial sector are close to completion. However, while substantial progress has been made, more needs to be done. In this regard, in 2018 the ECB continued to contribute to the ongoing discussions on completing the banking union and the capital markets union, and also highlighted the importance of developing tools to mitigate risks in the non-bank financial sector.

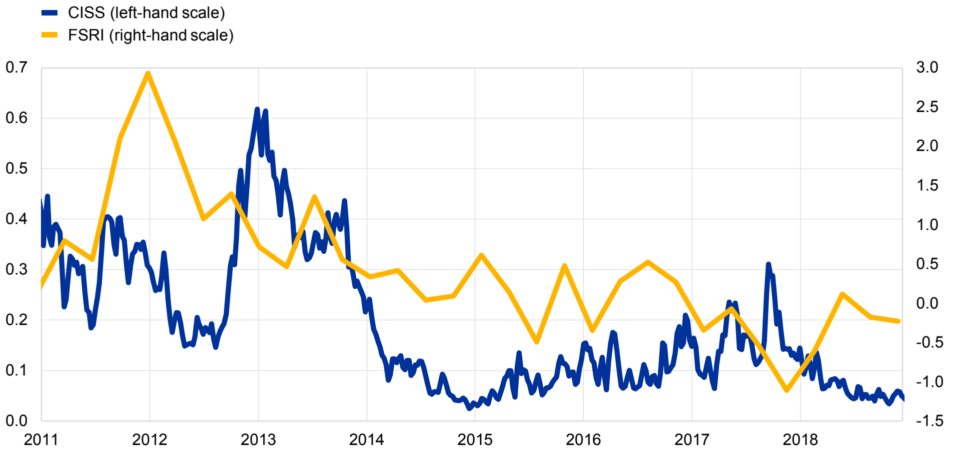
3.1 The financial stability environment in 2018

The financial stability environment became more challenging in 2018, which was reflected in systemic stress indicators (see Chart 21). The analysis in 2018 highlighted that some developments supported financial stability, including a continued economic expansion (see Chapter 1) and improved bank resilience. However, high risk-taking activities in some financial market segments contributed to compressed global risk premia. Rising protectionism and renewed stress in emerging market economies produced bouts of volatility. In the European Union, growing uncertainties related to the Brexit process and stress in the Italian bond markets contributed to higher political and policy uncertainty.

Chart 21

Financial stability risk index and composite indicator of systemic stress in financial markets for the euro area

(January 2011−October 2018)



Sources: Bloomberg, Eurostat, ECB and ECB calculations.
Notes: For more details on the financial stability risk index (FSRI), see Special Feature A in the May 2018 issue of the ECB's Financial Stability Review. The scale of the FSRI represents the deviation from the historical mean expressed in multiples of the historical standard deviation. The composite indicator of systemic stress in financial markets (CISS) is normalised to lie between 0 and 1. FSRI: quarterly frequency; CISS: weekly frequency, two-week moving average.

Four key risks to financial stability

In this environment, four key risks to euro area financial stability over a two-year horizon were identified and discussed in the ECB's semi-annual Financial Stability Review.

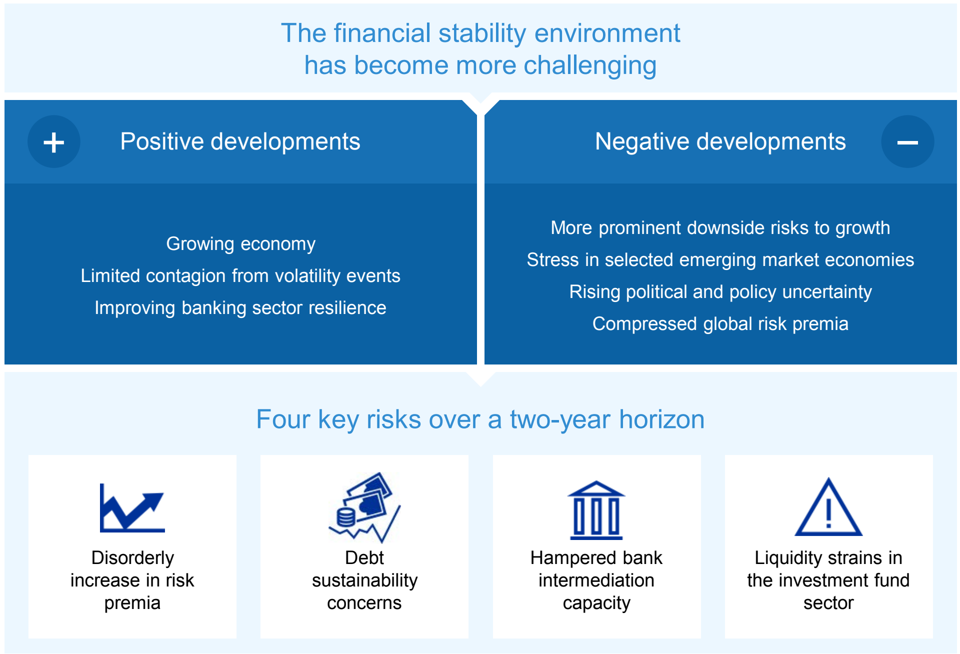
Risk of sharp falls in asset prices

The possibility of a disorderly increase in global risk premia constituted the first key risk to financial stability over the coming years. The main triggers that could bring about a disorderly increase in risk premia relate to both domestic and external factors. This includes disorderly market reactions to political or policy uncertainty, further stress in emerging market economies with possible spillovers to advanced economies and a sharp turnaround in US macro-financial prospects. Pockets of high asset price valuations and high correlations across global financial asset prices may amplify a potential pick-up in global risk premia.

Debt sustainability concerns

The second key risk was related to debt sustainability concerns. Indicators of stress in the euro area sovereign bond markets picked up somewhat in mid-2018, reflecting political developments in Italy. The increases were, however, relatively moderate, indicating a contained spillover of stress to other euro area countries. Indebtedness across euro area sovereigns remained high and the debt ratio has continued to increase in several highly indebted countries in recent years. Furthermore, in some countries private sector debt levels remained high by both historical and international standards and were above thresholds ordinarily associated with a debt overhang, although debt dynamics continued to benefit from the strong cyclical momentum of the euro area economy combined with very favourable financing conditions.

Figure 1
Key risks to financial stability in the euro area



Source: ECB.
Note: Financial stability assessment as at 29 November 2018.

Momentum was building up in real estate markets across the euro area during 2018. The robust dynamics of house prices continued to feed into mild signs of overvaluation in the euro area residential real estate markets as a whole amid marked cross-country differences. In the commercial real estate markets, price increases have significantly outpaced rental price growth in recent years. Hence, yields on prime commercial property have been on a declining trend, reaching a new low in the current cycle. The observed yield compression might be indicative of possible price overvaluation in commercial real estate markets. However, it should also be noted that there are initial signs of a more mature phase of the cycle.

Hampered bank intermediation capacity

The third key risk was related to the low profitability prospects of euro area banks and possible hampered bank intermediation capacity. Euro area banks' profitability stabilised, with aggregate return on equity standing at 6.9% in the third quarter of 2018. Banks' solvency positions remained fairly stable, with euro area significant institutions' aggregate Common Equity Tier 1 ratio standing at 14.2% at the end of the third quarter of 2018, compared with 14.3% a year earlier.

Euro area banks' stock prices fell by around 30% in 2018, reflecting higher political uncertainty and concerns about the external outlook. The drop in stock prices contributed to lower valuation ratios, with aggregate price-to-book ratios for the largest listed banks standing at 0.6 at the end of 2018.

Notable decrease in the total value of non-performing loans

The steady decline in the non-performing loans (NPLs) of euro area banks continued. Non-performing loans decreased by €94 billion in the first three quarters of the year and euro area significant institutions' aggregate NPL ratio stood at 4.2%, down from 5.2% one year earlier. The NPL reduction process either accelerated or continued

apace in the majority of high-NPL countries. A granular decomposition of changes in NPL ratios over this period shows that the bulk of the reductions in NPL ratios were linked to cures, liquidations and write-offs. At the same time, a more active secondary market for impaired assets also contributed significantly to NPL reductions. Across countries, disposal activity continued to be strongest in Italy and Spain. Notwithstanding the increase in transactions, liquidity in the secondary markets for NPLs continued to be afflicted by several types of market failure. NPL transaction platforms could help in overcoming market failures by offering the prospect of greater transparency in NPL markets, fostering wider investor participation and addressing coordination issues.[41]

Liquidity risks in the investment fund sector

The fourth key risk was related to possible liquidity strains in the investment fund sector. Over the past ten years total assets in the euro area investment fund sector have more than doubled from €5.7 trillion at the end of 2008 to €13.8 trillion in June 2018. The investment fund sector now accounts for nearly 20% of total assets held by the euro area financial sector. Investment funds' holdings of risky assets continued to grow in 2018. At the same time, their cash buffers declined, raising the sector's vulnerability to potential shocks in global financial markets. Therefore, should large redemptions by investors take place, funds may need to liquidate relatively large parts of their portfolios, which could depress market prices. While existing rules in the EU provide a robust framework to address investor protection and fund-specific vulnerabilities, there are growing concerns over cyclical risks associated with increased liquidity risk-taking and a growing market footprint of the sector as a whole.

All in all, the four risks are all clearly intertwined and would, if they were to materialise, have the potential to be mutually reinforcing.

3.2 The ECB's macroprudential policy function

Macroprudential policies to address systemic risks

The emergence of systemic risks in the financial system is addressed through macroprudential policies and the ECB has been assigned an important role and specific powers in this field (see the SSM Regulation). In particular, the ECB has been given the task of assessing macroprudential measures provided for by EU legislation and adopted by national authorities in countries subject to ECB Banking Supervision, and also has the power to top up such national measures in the banking sector. In response to the risk environment confronting the euro area in 2018, national authorities, in consultation with the ECB, implemented a number of macroprudential measures to mitigate and build up resilience to systemic risks, and to ensure that financial services continue to be provided effectively to the real economy.[42]

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[41] See Fell, J., Grodzicki, M., Krušec, D., Martin, R. and O'Brien, E., "Overcoming non-performing loan market failures with transaction platforms", *Financial Stability Review*, ECB, November 2017.

[42] National authorities retain the power to activate and implement macroprudential measures provided for in the EU legislation, but should notify the ECB before reaching a decision on such measures. The ECB assesses the planned measures and can object to the proposed decision and also has the power to apply, if deemed necessary, more stringent measures than adopted nationally to address risks to financial stability (Article 5 of the SSM Regulation and Article 13h of the Rules of Procedure of the ECB (Decision ECB/2014/1)).

Continued macroprudential efforts to preserve financial stability

Assessing the adequacy of macroprudential policies

In 2018 the ECB continued its extensive efforts in the field of macroprudential policy, making an important contribution to preserving financial stability. In addition to making substantial analytical efforts, the ECB provided a platform for regular joint risk assessments and policy coordination between the ECB and the national authorities in the euro area. The ECB and the national authorities also continued to engage in broad and open discussions on the use of macroprudential instruments, and on the development of methods for assessing different types of systemic risk. These efforts further improved the process and methods for assessing systemic risks and the adequacy of macroprudential policy measures in the euro area.

Enhanced communication on macroprudential policy issues

Furthermore, the ECB continued to enhance its communication on macroprudential policy issues, raising awareness by making the ECB's ongoing work and thinking in this field more transparent. Besides speeches, press releases and other publications such as occasional papers, the ECB continued publishing its biannual Macroprudential Bulletin, which is an important communication tool for explaining the ECB's macroprudential policy framework and decision-making procedures, as well as analytical advances and assessments in the field. The ECB also continued to publish on its website an overview of currently active macroprudential measures in countries subject to ECB Banking Supervision.

Macroprudential policy decisions during 2018

103 macroprudential policy decisions were assessed by the ECB in 2018

In line with its legal mandate, the ECB in 2018 assessed notifications by the national authorities in the euro area of 103 macroprudential policy decisions regarding instruments targeting cyclical and structural systemic risks, as well as other instruments under Article 458 of the Capital Requirements Regulation (CRR). Most notifications related to the setting of countercyclical capital buffers (CCyBs) or the identification of global and other systemically important institutions (G-SIIs and O-SIIs) and the calibration of their capital buffers. The Governing Council of the ECB did not object to any of the macroprudential policy decisions that national authorities notified during 2018.

Decisions assessed included the setting of countercyclical capital buffers and measures targeting structural systemic risks

All 19 euro area countries assess on a quarterly basis cyclical systemic risks and, with those assessments as input, set the level of their CCyB. During 2018 four countries increased their CCyB rate. Národná banka Slovenska decided to increase the CCyB rate from 0.5% to 1.25%, effective from 1 August 2018, and to then further increase it to 1.5%, as of 1 August 2019, citing that Slovakia was among the EU countries with the most dynamic credit growth, both in the corporate as well as the household sector. Moreover, Lietuvos bankas decided to raise the CCyB rate from 0.5%, effective from 31 December 2018, to 1%, as of 30 June 2019. The increase in the CCyB rate was not associated with excessive cyclical risk, but rather with a change in the bank's guiding principles with regard to setting the CCyB rate (now set at a positive level in a moderate risk environment). The Central Bank of Ireland decided to activate the CCyB rate at 1% as of 1 July 2019, with the intention to establish a buffer sufficiently early in the cycle in order to effectively promote resilience, while also accounting for the

relative sensitivity of the Irish macro-financial environment to external developments. Finally, the High Council for Financial Stability in France introduced a positive CCyB rate for the first time, set at 0.25% and applicable from 1 July 2019, to increase banks' resilience against cyclical risks, referring to the favourable macroeconomic context and the continued acceleration of the financial cycle.

Regarding macroprudential instruments targeting structural systemic risks, the ECB assessed national authorities' decisions on capital buffers for 106 O-SIIs[43], as well as three decisions on systemic risk buffers. As for measures notified under Article 458 of the CRR, the High Council for Financial Stability in France decided to tighten large exposure limits applicable to highly indebted large domestic non-financial corporations in order to address risks emanating from the acceleration of the financial cycle and the continued upward trend in the debt of such corporations. Furthermore, the Nationale Bank van België/Banque Nationale de Belgique proposed a two-pronged measure to target real estate risks, consisting of a general risk weight add-on of five percentage points for the retail exposures of banks using the internal ratings-based (IRB) approach secured by domestic immovable property, as well as of an additional risk-sensitive element targeting the risk profile of each IRB bank's mortgage portfolio. The measure is aimed at increasing IRB banks' resilience to macroprudential risks stemming from developments in the real estate market and the increasing vulnerability of borrowers.

Cooperation with the European Systemic Risk Board

Continued cooperation with and support to the ESRB

The ECB continued to provide analytical, statistical, logistical and administrative support to the European Systemic Risk Board (ESRB) Secretariat, which is in charge of the day-to-day business of the ESRB. The ESRB is responsible for the macroprudential oversight of the EU financial system and the prevention and mitigation of systemic risk.

The ECB regularly contributed to the ESRB's ongoing identification and monitoring of potential systemic risks, as well as providing general support to research undertaken by the ESRB. For example, the ECB cooperated with the ESRB's High-Level Task Force on Safe Assets, which was set up to investigate the practical considerations relating to sovereign bond-backed securities (SBBS). A report comprising two volumes conveying the Task Force's main findings, as well as the technical analysis underpinning those findings, was published. In addition, the ECB contributed to a series of published working papers related to SBBS.

With respect to the EU non-bank financial sector, the ECB contributed to the drafting of the third issue of the EU Shadow Banking Monitor, which presents an overview of developments in the sector, with a focus on assessing potential risks to financial stability. Also in the non-banking sphere, the ECB contributed to the ESRB report on Macroprudential provisions, measures and instruments for insurance, which was published in November 2018. The report serves as an input to ongoing Solvency II

[43] See "ECB floor methodology for setting the capital buffer for an identified Other Systemically Important Institution (O-SII)", Macroprudential Bulletin, Issue 3, ECB, June 2017.

discussions on strengthening the regulatory framework for insurers and reinsurers from a macroprudential perspective.

The ECB co-chaired an expert group tasked with replying to the EU Council request that the ESRB develop "macro-prudential approaches to prevent the emergence of system-wide NPL problems, while taking due consideration of procyclical effects of measures addressing NPLs' stocks and potential effects on financial stability". The published report identified drivers of system-wide increases in NPLs, concluding that no fundamental changes to the existing macroprudential toolkit seem to be required, but some refinements should be considered.

In addition, the ECB chaired the task force which prepared the ESRB's adverse scenarios for the European Banking Authority's 2018 EU-wide stress test and the European Insurance and Occupational Pensions Authority's 2018 insurance stress test, as well as providing critical technical and modelling support. Furthermore, the ECB hosted the Annual Workshop on Stress Testing in December 2018.

Finally, the ECB continued to support the ESRB in its analytical work on the large-scale dataset available under the European Market Infrastructure Regulation. This work enabled a shift towards a daily collection, processing and analysis of the data. This analytical effort is now supporting the ESRB, and its advisory committees and their substructures, in performing a more comprehensive and timely monitoring of derivatives markets.

More detailed information on the ESRB can be found on its website and in its Annual Reports.

3.3 Microprudential activities to ensure the soundness of individual banks

Throughout 2018 ECB Banking Supervision continued to contribute to a stable European banking sector and a level playing field for all banks in the euro area. While banks in the euro area have increased their resilience over the past years, they still face considerable challenges.

One of the most pressing challenges faced by banks in the euro area is a lack of profits

One of the most pressing challenges faced by banks in the euro area is a lack of profits. And while the situation has generally improved, they remain under pressure to adjust their business models. They still need to find ways to become sustainably profitable throughout the economic cycle. In 2018 ECB Banking Supervision finalised and published a thematic review on profitability and business models. The review found that the situation differs widely across banks. It also found that banks' strategic steering capabilities are an important factor influencing the profitability of banks. ECB Banking Supervision will continue to monitor the situation and challenge banks' business models.

Resolving the NPL problem is a priority

Next to profitability, legacy assets such as NPLs still pose a problem for the euro area banking sector. NPLs curb banks' profits, make them less resilient and reduce their ability to finance the economy. While it is primarily a responsibility of the affected

banks, resolving the problem has been a top priority of EU authorities (as evidenced by the EU Action plan to tackle NPLs in Europe) and of ECB Banking Supervision in particular. Already in March 2017 ECB Banking Supervision had published qualitative guidance on how to deal with NPLs. This guidance was supplemented in March 2018 by an addendum, which specifies the expectations for the provisioning of new NPLs. In July 2018 ECB Banking Supervision announced further steps in dealing with the stock of NPLs.

Improved supervisory tools and methods

Throughout the year ECB Banking Supervision continued improving its tools and methods. Following public consultations (launched in March 2018), ECB Banking Supervision published, in November 2018, the final guides for banks on their internal capital and liquidity management (the Internal Capital Adequacy Assessment Process or ICAAP and the Internal Liquidity Adequacy Assessment Process or ILAAP). Linked to the ongoing Targeted Review of Internal Models, ECB Banking Supervision also published, after a public consultation, the first chapter of its guide to internal models in November 2018. Furthermore, it issued guides on the assessment of licence applications which also cover fintech credit institutions. Another guide published in September 2018 focuses on on-site inspections and internal model investigations. Its aim is to explain how such inspections are conducted. ECB Banking Supervision also contributed to the European Banking Authority's stress test of European banks (see Box 4).

In 2018 ECB Banking Supervision was also involved in handling the failure of a significant euro area bank. This particular case highlighted the need to further harmonise the rules for dealing with failing banks. And while the ECB has no anti-money laundering powers, the case also highlighted the need for a more harmonised approach towards this issue at the European level.

More detailed information on ECB Banking Supervision can be found on its website and in the 2018 ECB Annual Report on supervisory activities.

Box 4
The 2018 EU-wide bank stress test

Overall set-up of the 2018 stress test and the ECB's involvement

The ECB was involved both in the preparation and the execution of the 2018 EU-wide stress test under the overall coordination of the European Banking Authority (EBA). The objective of the stress test was to assess the resilience of financial institutions, by detecting the main areas of vulnerability under a baseline and an adverse scenario. In addition, the results of the exercise inform the Supervisory Review and Evaluation Process (SREP) assessment for each participating bank, from both a quantitative and a qualitative perspective. As part of the preparatory work, the ECB took part in designing the baseline scenario and the adverse scenario. The latter scenario was developed together with the ESRB and the EBA and in close cooperation with the national competent authorities (NCAs). In addition, the ECB actively contributed to the development of the EBA Stress Test Methodological Note, together with the NCAs. The main challenge of the 2018 methodology was the introduction of the International Financial Reporting Standard 9 (IFRS 9) accounting principle, which had an impact on several risk profiles (credit risk, market risk and net interest income). Similarly,

benefiting from a fruitful interaction with experts from the EBA and the NCAs, the ECB produced the official credit risk benchmarks for the stress test. These credit risk benchmarks are expected to be applied by banks for portfolios where no appropriate credit risk models are available.

Following the launch of the EU-wide stress test on 31 January 2018, the ECB was responsible for the quality assurance process for the banks under its direct supervision. Due to the introduction of IFRS 9, the timeline of the 2018 exercise was extended compared with previous years to provide banks with more time for the submission of stress-test data. The key objective of the quality assurance, which was carried out jointly by the ECB and the NCAs, was to ensure that banks correctly applied the common methodology developed by the EBA. The process involved over 200 ECB staff members. From the ECB's microprudential supervisory function, Joint Supervisory Team members were responsible for the thorough analysis of the projections submitted by the banks, taking into account bank-specific characteristics. They were also in charge of the direct interaction with banks. Horizontal bottom-up teams were responsible for assessing banks' compliance with methodological requirements, and for challenging the consistency and credibility of bank-by-bank results by means of peer benchmarking analysis. The top-down teams of the ECB's macroprudential function challenged banks' submissions using their top-down models. The work was supported by a dedicated project management office, as well as infrastructure teams and country coordinators, which facilitated the interaction with national authorities.

Of the 48 banks covered by the EBA-led stress test, 33 are directly supervised by ECB Banking Supervision, covering 70% of banking assets in the euro area. Individual results for all 48 banks, along with detailed balance sheet and exposure data as at year-end 2017, were published by the EBA on 2 November 2018. In addition to the 33 ECB banks in the EBA sample, the ECB conducted in parallel its own SREP stress test for another 54 banks which it directly supervises but are not included in the EBA sample[44]. This exercise was based on the same methodology and scenarios as for the EU-wide stress test, but it applied less sophisticated approaches and less strict reporting thresholds to ensure a proportionate treatment for smaller banks.

Earlier in 2018 the ECB also stress tested the four Greek banks that it directly supervises. While following the same methodology, scenarios and quality assurance approach as the EU-wide stress test run by the EBA, this stress test applied an accelerated timetable in order to complete the exercise before the end of the European Stability Mechanism's third support programme for Greece.

The scenarios

The adverse scenario for the 2018 stress test was based on a consistent set of macro-financial shocks that could materialise in a crisis context. For the euro area, the scenario comprised a cumulative contraction in GDP of 2.4%, a cumulative drop in real estate prices of 17% and an immediate decrease in equity prices of 31%.

The scenario reflected the main systemic risks identified at the launch of the exercise. These included: (i) an abrupt and sizeable repricing of risk premia in global financial markets; (ii) public and private debt sustainability concerns; (iii) an adverse feedback loop between weak bank profitability and low nominal growth; and (iv) liquidity risks in the non-bank financial sector with potential spillover effects on the broader financial system.

[44] See the press release entitled "ECB 2018 stress test analysis shows improved capital basis of significant euro area banks", ECB Banking Supervision, 1 February 2019.

To cater for the long time lag between the launch of the EBA stress-test exercise at the start of 2018 and the publication of the results, supplementary sensitivity analyses for risks which became prominent over the course of the year, such as the risks of an abrupt downturn of the most relevant emerging market economies for euro area banks and additional tension in sovereign debt markets, were carried out by the ECB and published in the November 2018 Financial Stability Review (FSR).

Results of the 2018 EBA stress test and key drivers

The application of the adverse scenario resulted in an aggregate Common Equity Tier 1 (CET1) depletion for the 33 banks under direct ECB supervision of 3.8 percentage points on a fully loaded basis, reducing aggregate CET1 capital from 13.7% at year-end 2017 to 9.9% at year-end 2020. This included a 0.3 percentage point impact from the first-time application of IFRS 9, which came into force on 1 January 2018. The corresponding depletion is 0.5 percentage point higher than in the 2016 exercise.

One key driver of the capital depletion under the adverse macroeconomic scenario was credit impairments, which were largely attributable to the fact that the macroeconomic scenario was more severe than in the 2016 stress test and to the introduction of IFRS 9 (in particular the lifetime loan loss provisions model). NPL stocks played a less prominent role in the exercise in 2018 than in 2016, reflecting improvements in banks' balance sheets. A second key driver was a funding spread shock affecting banks' market risk, which was partly offset by the positive effect of higher long-term interest rates. A third key driver was the impact of market price and liquidity shocks on fair value portfolios. The impact of the full revaluation of these portfolios was strongest for global systemically important banks (G-SIBs). However, these banks were largely able to compensate for the losses with high client revenues. The stress impact on liquidity and model uncertainty reserves also affected G-SIBs more than other banks. Another key driver was significant stress on net fee and commission income.

The higher capital depletion was also affected by a more risk-sensitive methodology. This was only partly offset by the effects of improved asset quality, especially as a result of the successful reduction of NPL volumes, and the benefits arising from the steeper increase in long-term interest rates under the scenario.

Despite the higher depletion, the aggregate post-stress fully loaded CET1 capital ratio of 9.9% was higher than that recorded in the 2016 stress-test exercise, when it came out at 8.8%. This was the result of banks' continued efforts to deal with legacy assets, together with the steady build-up of capital in recent years. The outcome confirmed participating banks' improved resilience to macroeconomic shocks. However, the exercise also exposed vulnerabilities in individual banks and yielded important additional insights into banks' stress-testing and risk management capabilities, which supervisors are following up on.

The results of the supplementary sensitivity analyses, which were published in the most recent FSR, indicated that the materialisation of the additional risks considered would have led to a further deterioration of the results by around 0.3 to 0.7 percentage point of CET1 capital in addition to the capital depletion of 3.8 percentage points.

3.4 The ECB’s contribution to strengthening the banking union and the capital markets union

Regulatory reforms after the crisis have built a more resilient financial sector, but further efforts are needed

Ten years after the outbreak of the global financial crisis, the main regulatory reforms that have contributed to building a more resilient financial sector are close to completion. While substantial progress has been made over the past decade, there are still a number of legal and institutional challenges that need to be overcome before European banks can operate within a truly integrated framework and users of financial services benefit from a more integrated single banking market. Further efforts are also needed to develop capital markets, while at the same time strengthening the regulatory and supervisory framework for the non-bank financial sector.

Completing the banking union and the capital markets union

In 2018 the ECB continued to contribute to the ongoing discussions on completing the banking union and the capital markets union (CMU). Both initiatives contribute to the better functioning of EMU. Establishing a common backstop to the Single Resolution Fund (SRF) and a European deposit insurance scheme (EDIS) will facilitate deeper financial integration and increase the credibility of the banking union. More integrated financial markets will improve the efficiency of credit allocation, facilitate private risk sharing and help to diversify sources of financing for the real economy.

Further progress on the banking union

In June 2018 the Heads of State or Government of the 27 EU Member States agreed on a first set of decisions on the reform of EMU, including the completion of the banking union. They agreed that the European Stability Mechanism would provide the common backstop to the SRF. The terms of reference of the common backstop were subsequently endorsed in December 2018. Furthermore, they decided that work should start on a roadmap for beginning political negotiations on EDIS. In December 2018 they agreed to establish a high-level working group to work on the next steps on EDIS.

A common backstop to the SRF

In its work on supporting EU fora in establishing a common backstop to the SRF, the ECB provided its views on the matter in its legal opinion on the European Commission’s proposal for a regulation on the establishment of the European Monetary Fund. In particular, the ECB stated that the backstop should support all possible measures taken by the SRB, including the provision of both solvency support and liquidity support to institutions under resolution. Moreover, the decision-making for disbursements by the backstop should be rapid and should not delay the adoption and execution of the SRB’s resolution decisions.

The risk reduction which has taken place can facilitate progress in the political debate on EDIS

Furthermore, the ECB considers that the risk reduction which has taken place can facilitate progress in the political debate on EDIS. It is important that the June 2016 roadmap is followed as closely as possible in this respect. With regard to the conditions for actually implementing EDIS, the ECB believes that they would need to be commensurate with the degree of risk sharing in the first stage of EDIS. The ECB also clarified that when considering different design models for the first stage of EDIS, it would be preferable to set up a centralised fund in order to ensure that the system is endowed with robust financial resources and that the governance framework allows for swift and joint decision-making at the European level.

The ECB also continued to provide technical advice on EDIS. In particular, it presented its updated quantitative analysis on EDIS capacity[45] to the Ad Hoc Working Party on the Strengthening of the Banking Union. This analysis finds that a fully funded European deposit insurance fund would be sufficient to cover payouts in a very severe shock. There would also be no unwarranted systematic cross-subsidisation within EDIS in the sense of some banking systems systematically contributing less than they would benefit from the fund, even when considering country-specific shocks.

The ECB contributed to the debate on risk-reduction measures

Furthermore, the ECB closely followed and contributed to the related debate on risk-reduction measures. In line with the June 2016 Council conclusions, completing the banking union requires further steps in terms of reducing and sharing risks in the financial sector. Continued risk reduction is in the direct interest of the ECB as a central bank and banking supervisor in order to strengthen the resilience of the banking system and of the banking union overall. In 2018 the ECB contributed to the joint monitoring report on risk reduction, prepared together with the European Commission and the Single Resolution Board, which provided an updated assessment of how risks are evolving within the banking union. Speaking at the European University Institute in May 2018, the ECB President explained that the dichotomy between risk reduction and risk sharing that characterises the debate is in many ways artificial. With the right policy framework, these two goals are mutually reinforcing.

The ECB is a strong supporter of the CMU project

The ECB has been a strong supporter of the CMU project since its inception. As recalled in the ECB's November 2018 Financial Stability Review, progress on the CMU project is needed as a fully fledged CMU has the potential to boost economic growth and can play a crucial role in strengthening the EU's financial architecture and supervisory regime; in this regard, a larger role for the European Securities and Markets Authority would be essential for the implementation of a fully fledged CMU. The completion of the various legislative initiatives presented in the Commission's CMU Action Plan is thus of key importance. In addition, the ECB's May 2018 Financial integration in Europe report highlighted various avenues identified by ECB research which would render the CMU project even more powerful in terms of risk-sharing benefits. These avenues focus on the value of pension reforms and institutional investment, the value of stimulating financial literacy, and the value of making further progress in enhancing the harmonisation of European insolvency frameworks.

A need to develop tools to mitigate risks in the non-bank financial sector

As reflected in the path set out in the Commission's CMU Action Plan, the non-bank financial sector is likely to play an increasingly important role in financing the economy in the euro area. This development offers many opportunities for a more diversified financial system, but – as financial intermediation shifts from banks to non-bank financial institutions – existing risks may migrate and new risks may emerge. The ECB in 2018 therefore highlighted the importance of developing tools to mitigate risks in the non-bank financial sector. For instance, EU legislators should introduce macroprudential tools designed to address systemic risks related to liquidity mismatches and the use of leverage in investment funds.

[45] For more details, see Carmassi, J., Dobkowitz, S., Evrard, J., Parisi, L., Silva, A. and Wedow, M., "Completing the Banking Union with a European Deposit Insurance Scheme: who is afraid of cross-subsidisation?", *Occasional Paper Series*, No 208, ECB, April 2018.

4 Smooth functioning of market infrastructure and payments

The Eurosystem plays a central role in developing, operating and overseeing the market infrastructure that ensures the free flow of payments, securities and collateral across Europe. Since the launch of the euro in 1999, it has greatly contributed to reshaping and consolidating the infrastructure for large-value payments, for post-trading services for financial instruments and, most recently, for instant retail payment services. Furthermore, the Eurosystem monitors the evolution of the digital transformation process to ensure that the safety and efficiency of financial market infrastructures are maintained.

4.1 TARGET Services

The Eurosystem's TARGET Services include three components: TARGET2, a real-time gross settlement system for euro payment transactions related to the Eurosystem's monetary policy operations, as well as bank-to-bank and commercial transactions; TARGET2-Securities (T2S), a single platform for Europe-wide securities settlement; and TARGET Instant Payment Settlement (TIPS), which allows payment service providers to offer their customers the real-time transfer of funds around the clock, every day of the year. All three services settle in central bank money, thereby eliminating the credit risk in the settlement of the transactions.

More than 1,700 banks use TARGET2 to initiate transactions in euro, either on their own behalf or on behalf of their customers. Taking into account branches and subsidiaries, more than 52,000 banks worldwide can be reached via TARGET2. In 2018 TARGET2 processed on average 346,834 payments per day with an average daily volume of €1.7 trillion.

Multi-currency functionality of T2S deployed with the connection of the Danish krone

One year after the final wave of migration to T2S, the connection of the Danish krone to the settlement platform was an important milestone, as it marked the first time that a currency other than the euro has been made available for delivery-versus-payment settlement in T2S, making use of the multi-currency functionality of the platform. In 2018 T2S processed an average of 572,172 transactions per day with an average daily volume of €925.69 billion.

Payments across Europe in real time around the clock

In November 2018 the Eurosystem launched TIPS, which offers final and irrevocable settlement of instant payments in euro at any time of day and on any day of the year in less than ten seconds. TIPS was developed to facilitate the pan-European reach of instant payments. It is based on SEPA Instant Credit Transfer (SCT Inst) – a scheme for pan-European instant payments which has already been adopted by more than 2,000 payment service providers in 16 countries. Furthermore, TIPS was developed as an extension of TARGET2, which already provides an extensive network of participants across Europe that can be leveraged by TIPS.

Facilitated by the launch of TIPS in November 2018, individuals and firms can transfer money between each other in less than ten seconds by using instant payment services

TIPS may ultimately have a wide reach and large scale, tapping into the established network of TARGET2 participants and addressable BICs. There are flexible options to interact with TIPS, so different kinds of users can access the platform via different functions.

4.2 Maintaining the safety and efficiency of financial infrastructure throughout the digital transformation process

While European integration has been progressing, financial market infrastructure and payments are subject to the comprehensive digital transformation process in the financial industry and in society at large. The Eurosystem has taken up this double challenge by fostering integration and innovation in its role as a catalyst. Furthermore, the Eurosystem promotes the safety and efficiency of market infrastructure and payments under its oversight mandate.

In the field of payments, the Eurosystem has continuously driven the process of European integration and innovation. An assessment of SEPA (Single Euro Payments Area) migration shows that the standardisation of euro credit transfers and direct debits has been successfully achieved and its impact on payments is positive. However, “IBAN discrimination”, i.e. the practice of creditors refusing to accept non-domestic payment accounts for direct debits, has not been completely eliminated yet. Further action is also required to develop electronic mandate solutions for SEPA direct debits, while SEPA for cards is yet to be completed. The ECB is encouraging European card schemes to foster interoperability and full pan-European reach, enabling any card to be used at any terminal.

Under the auspices of the Euro Retail Payments Board (ERPB) – a high-level forum chaired by the ECB that fosters the development of an integrated, innovative and competitive market for euro-denominated retail payments in the EU – work on cards standardisation continued, along with the promotion of retail payments innovation in instant payments, person-to-person mobile payments, and the accessibility of retail payment services.

In the area of payment initiation services, i.e. online services which access a user’s payment account to initiate the transfer of funds on the user’s behalf and with the user’s consent and authentication, the ERPB decided on a common set of technical, operational and business requirements for the efficient and pan-European provision of payment initiation services. In the area of e-invoicing, the ERPB focused on the adoption of an ISO 20022-based request-to-pay message and on further harmonisation among electronic invoice presentment and payment (EIPP) service providers.

In the field of securities, the Eurosystem has continued to foster T2S and post-trade harmonisation by adapting its monitoring framework for post-trade harmonisation to take into account the completion of T2S migration. 85% of T2S markets comply with

T2S harmonisation standards, but further work needs to be done at market level to increase compliance with T2S corporate action standards.

In the area of collateral management, the ECB has, together with key European financial market stakeholders, delivered a first set of harmonised business processes and workflows based on ISO 20022 messaging for collateral management. More specifically, a harmonisation report on triparty collateral management and a harmonisation report on corporate actions were published in 2018, and the ECB is counting on the support of market participants to implement the harmonisation proposals set out in these reports, in particular to support the development of the new Eurosystem Collateral Management System (ECMS).

New research into the possible use of DLT for financial market infrastructures

In the field of fintech, research into the implications of distributed ledger technology (DLT) for Europe's financial market infrastructure was deepened and expanded. In 2018 the joint research programme of the ECB and the Bank of Japan to assess the possible use of DLT for financial market infrastructures continued with the completion of Project Stella phase 2. A truly novel approach to achieving interoperability between ledgers was analysed which does not require a connection or institutional arrangements between ledgers.

To ensure the safety and efficiency of financial market infrastructures and payments, the Eurosystem sets out oversight objectives in specific oversight regulations, standards, guidelines and recommendations and conducts its oversight tasks by collecting relevant information, assessing the information against the oversight objectives, and inducing change where necessary. In 2018 the Eurosystem further strengthened its oversight through enhanced reporting of major incidents by payment service providers,[46] payment systems and payment schemes.

Based on its ongoing monitoring of card fraud, the Eurosystem published its fifth report on card fraud in 2018. The report showed a trend reversal with a slight decrease in rates of fraud involving cards issued in SEPA and a steep drop in card fraud at ATMs. However, online fraud continues to rise (albeit at a lower rate than the number of card-not-present transactions), accounting for almost three-quarters of total card fraud.

With regard to the oversight of securities settlement systems, the ECB participates, together with the other central banks of the euro area, in the authorisation and regular review and monitoring of central securities depositories (CSDs) under the CSD Regulation as the central bank of issue for the euro. In 2018 the Eurosystem provided its opinion on the authorisation of five CSDs and an opinion on the authorisation of one CSD to provide banking-type ancillary services.

2018 saw the launch of the first comprehensive assessment of T2S in operation against the CPMI-IOSCO Principles for financial market infrastructures. The assessment is being conducted by the Eurosystem in consultation with the T2S Cooperative Arrangement, which consists of overseers and supervisors of CSDs

46 Based on the EBA Guidelines on major incident reporting under Directive (EU) 2015/2366 (PSD2) (EBA/GL/2017/10).

using T2S services, central banks of issue for currencies settled in T2S and the European Securities and Markets Authority.

Adoption of a revised supervisory framework for CCPs remains critically important and urgent

With regard to central counterparties (CCPs), the Eurosystem has continued to contribute to the activities of the supervisory colleges established under the European Market Infrastructure Regulation (EMIR). The growing role of CCPs is enhancing the resilience of the financial system but is also concentrating liquidity risks, which may affect the money market and the smooth operation of payment systems and necessitate the provision of central bank liquidity, in particular under exceptional circumstances. The Eurosystem needs an appropriate framework to monitor, assess and, where necessary, address these risks, both within the EU and in third countries. This is particularly important in the light of the fact that a significant proportion of euro-denominated clearing activities is carried out in the United Kingdom. The adoption of a revised supervisory framework for CCPs therefore remains critically important and urgent.

5 Efforts to support market functioning, and financial services provided to other institutions

In response to increasing concerns regarding the viability of the euro overnight index average (EONIA), in 2017 the ECB started developing a new reference interest rate, the euro short-term rate (€STR), based entirely on money market statistical reporting (MMSR) data. The €STR methodology was published in June 2018 after receiving broad support in two public consultations and was subsequently recommended by the working group on euro risk-free rates as a replacement for EONIA. As a result, the €STR is expected to become one of the main reference rates in euro area markets.

The ECB is responsible for the administration of various financial operations on behalf of the EU. It also has an overall coordinating role in relation to the Eurosystem Reserve Management Services framework.

In order to promote the integrity and effective functioning of the wholesale foreign exchange market, a set of principles of good practice has been developed (see Box 5 at the end of this chapter).

5.1 The €STR, the new overnight reference rate for euro area money markets

In response to uncertainty, the ECB will produce its own overnight interest rate, the €STR

As long as it has existed, the euro area financial market has relied on reference rates such as EONIA[47]. EONIA is widely used as the underlying reference rate in a range of derivatives contracts, such as interest rate swaps, or as a way to determine future payments in a number of open contracts. EONIA is also widely used for the valuation of financial products (for discounting future cash flows), making it of great importance for the functioning of markets. Benchmarks like EONIA are also important for central banks, as they are an indicator of how the central bank's monetary policy is affecting various market segments and is being transmitted to the rest of the economy.

The use of EONIA will be prohibited in future – a replacement is urgently needed

In future, the use of EONIA in its current form will be prohibited as it does not meet the requirements of the EU Benchmarks Regulation (BMR). After consultation with the panel banks, the European Money Markets Institute (EMMI), the administrator of EONIA, announced in February 2018 that no change in EONIA's methodology would be pursued. This means that a replacement for EONIA is urgently needed to preserve the smooth functioning of all markets that rely on the existence of a robust overnight rate.

[47] EONIA is an index reflecting the average rate at which a panel of voluntarily participating banks lend euro overnight in the unsecured interbank market. It is computed each day on the basis of the submissions of the banks on the panel and is administered by EMMI.

In view of the uncertainty surrounding EONIA, the ECB announced in September 2017 that it would produce its own overnight interest rate, the euro short-term rate (€STR), based entirely on data readily available to the Eurosystem via the daily money market statistical reporting. The collection of data intended to support the Eurosystem in the implementation of monetary policy started in July 2016 on the basis of the Money Market Statistical Reporting Regulation. It benefits from the input of the 50 largest euro area banks as measured by balance sheet size, which report every business day by 07:00 CET all their transactions from the previous business day in the unsecured and secured money markets, the FX swap market and the overnight index swap (OIS) market.

The €STR will have all the features market participants need

The ECB embarked on the production of the €STR with the clear intention that it should have all the features needed by market participants. The ECB therefore aims to follow best practice for benchmark production as embodied in the IOSCO principles and will strive to achieve the greatest possible transparency in the design of the rate, which has benefited from input received in two public consultations. The first public consultation launched in November 2017 dealt with the scope of the €STR and its "underlying interest", while the second public consultation launched in March 2018 covered the precise modalities of the rate calculation. The final methodology for the €STR was released in June 2018.

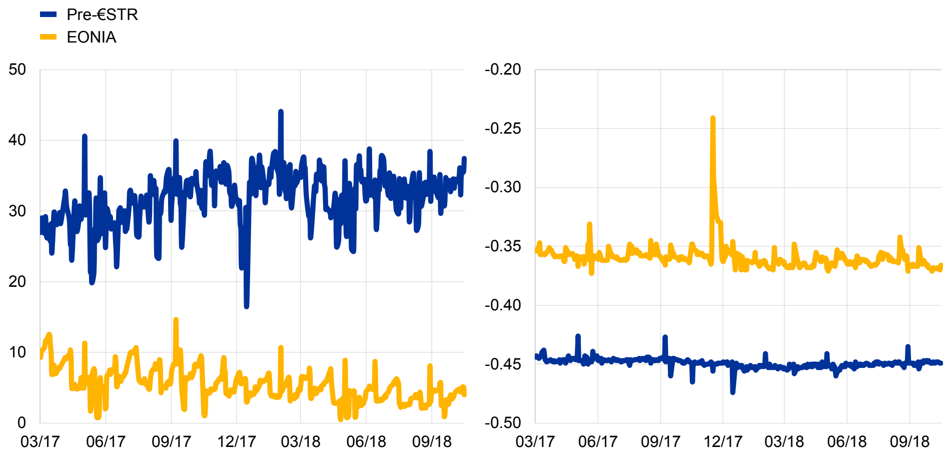
The €STR will address some shortcomings of the current EONIA methodology

The design of the €STR also seeks to address some of the shortcomings of the current EONIA methodology, while remaining fairly simple and close to what market participants are accustomed to. Like EONIA, the €STR is an unsecured rate, which implies that its value reflects the pure cost of funds and is not affected by other considerations, such as collateral. Also like EONIA, the €STR is an overnight rate, which is the tenor of the bulk of unsecured market activity. There are, however, significant differences between EONIA and the €STR. While EONIA is an interbank lending rate, the €STR captures the borrowing activity of the MMSR reporting agents not only from other banks but also from other financial corporations, such as pension funds, insurers and asset managers, thereby taking into account the fact that pure interbank market activity has declined in importance in the euro wholesale unsecured money market. Furthermore, while EONIA is based on a voluntary panel of contributors, the size of which has declined over time, the €STR is based on data from statistical reporting with a much broader and stable base of reporting agents. As a result, the underlying volumes are higher than the volumes underpinning EONIA. €STR daily volumes average €32 billion and range from €16.5 billion to €44.1 billion and, on average, around 32 banks report data each day. Furthermore, the €STR exhibits lower volatility than EONIA and is less susceptible to idiosyncratic behaviour (see Chart 22).

Chart 22

Pre-€STR and EONIA – underlying volumes and rates

(left panel: EUR billions; right panel: percentages; 15 March 2017-18 September 2018)



Sources: EMMI and ECB.
Note: Pre-€STR refers to a data series which the ECB updates once every maintenance period and is computed by applying €STR methodology to available MMSR data.

There are two essential differences between EONIA and the €STR, which market participants should bear in mind and prepare for. First, in view of the different scope of EONIA and the €STR, in particular that the €STR is a borrowing rate, while EONIA is a lending rate from the reporting agent's point of view, there is currently a spread of around nine basis points between EONIA and the €STR. Second, in view of the MMSR reporting cycle, which ends at 07:00 on the following business day, the €STR can only be published one business day after the trade date of the eligible transactions, while EONIA is published on the same business day. This implies that all users who currently rely on an overnight benchmark being available on the same day should prepare the technical and procedural changes needed to adjust to the publication time of the €STR.

The €STR will become available by October 2019

The €STR will become available by October 2019, following the completion of a thorough internal testing of systems and procedures at Eurosystem level. Meanwhile, the ECB is updating the pre-€STR data series once every maintenance period. This series is intended to give the general public an idea of how the €STR would look and behave if it were already in production. It includes daily computations since March 2017, which will help ease the adoption of the €STR once it is in production.

In September 2018 a private sector working group on euro risk-free rates, established with the backing of the ECB, the European Securities and Markets Authority, the Belgian Financial Services and Markets Authority (FSMA) and the European Commission, recommended the €STR as the replacement rate for EONIA and also as a rate which may serve the construction of fall-backs in contracts that currently refer to the euro interbank offered rate (EURIBOR). This recommendation was made following a public consultation on the possible candidates, including both secured and unsecured rates. The consultation received a good number of responses and produced both (i) an affirmation of the quality of the analysis and (ii) clear guidance on the preferred risk-free rate. The €STR was seen as the most appropriate future euro

risk-free rate, predominantly on the grounds of its unsecured nature, compilation methodology and low volatility, as well as the fact that it will be administered by the ECB, an EU institution.

The recommendation of the €STR as a euro risk-free rate is only the very first step in the complex process of replacing EONIA. In December 2018 the working group released a report on the possible transition options away from EONIA. The possible transition paths are constructed as a response to four key questions: (i) Will EONIA and the €STR be published in parallel or will the €STR succeed EONIA beyond the BMR transition date? (ii) Will EONIA and the €STR be independent rates or will the methodology of EONIA evolve to become dependent on the €STR beyond the BMR transition date? (iii) Can an EONIA-€STR spread smooth the transition? (iv) Can the EONIA OIS and €STR OIS discounting curves coexist? The report recommends that EMMI, as the administrator of EONIA, should develop the current methodology of EONIA from being set by panel banks to being calculated as a fixed spread over the €STR for a limited period of time, until EONIA is discontinued. This would provide a stable platform to facilitate a progressive and smooth transition to the €STR.

It is important that all EONIA users start transition planning

As next steps, it is of critical importance that all EONIA users start transition planning. There are many steps that can already be taken ahead of the release of the €STR, for example: (i) increasing internal awareness of the risks of and exposures to products linked to EONIA; (ii) starting preparations by reviewing the stock of contracts and evaluating the impact of the transition away from EONIA; (iii) budgeting for possible changes in internal systems and valuation models, especially as regards clearers; and (iv) communicating actively with clients directly, participating in relevant fora, such as industry working groups and roundtables, and responding to public consultations. Successful transition depends on the preparedness of every party, so it is important that all users are made aware and there is broad and active participation in discussions and consultations.

5.2 Administration of borrowing and lending operations

The ECB administers MTFA and EFSM operations

The ECB is responsible for the administration of the borrowing and lending operations of the EU under the medium-term financial assistance (MTFA) facility[48] and the European Financial Stabilisation Mechanism (EFSM)[49]. In 2018 the ECB processed interest payments in relation to the loans under the MTFA. As at 31 December 2018 the total outstanding amount under this facility was €1.7 billion. In 2018 the ECB also processed various payments and interest payments in relation to the loans under the EFSM. As at 31 December 2018 the total outstanding amount under this mechanism was €46.8 billion.

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[48] In accordance with Article 141(2) of the Treaty on the Functioning of the European Union, Articles 17, 21.2, 43.1 and 46.1 of the Statute of the ESCB, and Article 9 of Council Regulation (EC) No 332/2002 of 18 February 2002.

[49] In accordance with Articles 122(2) and 132(1) of the Treaty on the Functioning of the European Union, Articles 17 and 21 of the Statute of the ESCB, and Article 8 of Council Regulation (EU) No 407/2010 of 11 May 2010.

The ECB processes EFSF and ESM payments, as well as loan facility agreement payments

Similarly, the ECB is responsible for the administration of certain payments arising in connection with the operations under the European Financial Stability Facility (EFSF)[50] and the European Stability Mechanism (ESM)[51]. In 2018 the ECB processed various interest and fee payments in relation to loans under the EFSF. The ECB also processed ESM member contributions and various interest and fee payments in relation to the loans under this mechanism.

Finally, the ECB is responsible for processing all payments in relation to the loan facility agreement for Greece.[52] As at 31 December 2018 the total outstanding amount under this agreement was €52.9 billion.

5.3 Eurosystem Reserve Management Services

The Eurosystem provides services under the ERMS framework

In 2018 a comprehensive set of financial services continued to be offered within the Eurosystem Reserve Management Services (ERMS) framework established in 2005 for the management of customers' euro-denominated reserve assets. A number of Eurosystem NCBs ("the Eurosystem service providers") offer the complete set of these services, under harmonised terms and conditions in line with general market standards, to central banks, to monetary authorities and government agencies located outside the euro area, and to international organisations. The ECB performs an overall coordinating role, promoting the smooth functioning of the framework and reporting to the Governing Council.

The number of customers maintaining an ERMS business relationship with the Eurosystem was 277 at the end of 2018, compared with 278 at the end of 2017. With regard to the services themselves, the total aggregated holdings (which include cash assets and securities holdings) managed within the ERMS framework increased by approximately 10% over the same period.

The ERMS legal framework was amended in 2018 to include several operational changes, clarify some aspects and address some suggestions from the ERMS Customer Survey conducted in 2017. To do so, in order to avoid a further amending legal act, all the amendments made to the ERMS legal framework have been consolidated in the new ECB Guideline on the Eurosystem's provision of reserve management services in euro to central banks and countries located outside the euro area and to international organisations (Guideline ECB/2018/14 (recast)).

50 In accordance with Articles 17 and 21 of the Statute of the ESCB (in conjunction with Article 3(5) of the EFSF Framework Agreement).

51 In accordance with Articles 17 and 21 of the Statute of the ESCB (in conjunction with Article 5.12.1 of the ESM General Terms for Financial Assistance Facility Agreements).

52 In the context of the loan facility agreement between the Member States whose currency is the euro (other than Greece and Germany) and Kreditanstalt für Wiederaufbau (acting in the public interest, subject to the instructions of and with the benefit of the guarantee of the Federal Republic of Germany) as lenders and the Hellenic Republic as borrower and the Bank of Greece as agent to the borrower, and pursuant to Articles 17 and 21.2 of the Statute of the ESCB and Article 2 of Decision ECB/2010/4 of 10 May 2010.

Box 5

FX Global Code

The FX Global Code is a set of principles of good practice designed to promote the integrity and effective functioning of the wholesale foreign exchange (FX) market. The Code was published in May 2017 in response to the deterioration in trust in the FX market following a series of misconduct scandals. The misconduct included, in particular, the manipulation of foreign exchange benchmarks like the WMR London 4 p.m. fixing. The Code is the outcome of an unprecedented joint effort by central banks (including the ECB) and market participants from the major FX trading centres around the globe under the auspices of the Bank for International Settlements. The objective of the Code is to promote a robust, fair, liquid, open and appropriately transparent FX market worldwide through a series of principles, rather than rules. The 55 principles in the Code focus on transparency, fairness and mitigating risks across six key areas: ethics, governance, execution, information sharing, risk management and compliance, and confirmation and settlement.

The FX Global Code differs from previous industry codes in various ways with respect to its adherence and governance frameworks and its periodic review. First, it is the first code of conduct jointly developed by the entire FX industry (central banks, sell-side and buy-side entities, non-bank liquidity providers, operators of e-trading platforms, and other entities providing brokerage, execution and settlement services), thus providing evidence of strong commitment among a wide range of key FX market participants. Second, unlike previous codes of conduct that were drawn up by various market associations or local foreign exchange committees, the FX Global Code applies globally to all wholesale foreign exchange market participants. These include sell-side institutions (i.e. banks), certain market infrastructure providers, and buy-side institutions (asset managers, corporates, etc.). Third, the Code incorporates the principle of proportionality in order to strike a balance between respecting diversity across jurisdictions, both in terms of market structure and regulatory treatment, and ensuring consistency in what is a global initiative. Fourth, whereas in the past institutions were not required to publish their commitments to codes of conduct, a Statement of Commitment to the FX Global Code has been drawn up to enable institutions to publicly declare their commitment to the Code. To enhance transparency, market participants’ Statements of Commitment are publicly available via a Global Index of Public Registers. Finally, the Code is collectively owned and maintained by the Global Foreign Exchange Committee (GFXC), a forum bringing together foreign exchange committees of the major FX trading centres. The GFXC regularly assesses whether new information or market developments warrant updates of or additions to the Code. For example, in December 2017 the GFXC updated the Code to provide more clarification on trading in the “last look” window, a practice utilised in electronic trading whereby a market participant receiving a trade request has a final opportunity to accept or reject the request against its quoted price. The GFXC will also oversee a more comprehensive review of the Code on a less frequent basis.

The individual central banks within the European System of Central Banks (ESCB) have been supporting the FX Global Code in their respective jurisdictions, which together play an important role in the global FX market. More specifically, ESCB central banks expect their regular FX trading counterparties to adhere to the FX Global Code and sign the Statement of Commitment. The vast majority of the FX counterparties of the ECB have done so. Signing the Statement of Commitment is also a prerequisite for market participants to become members of the ECB’s FX Contact Group, which is a discussion forum for the ECB and industry-wide market professionals involved in the wholesale FX market.

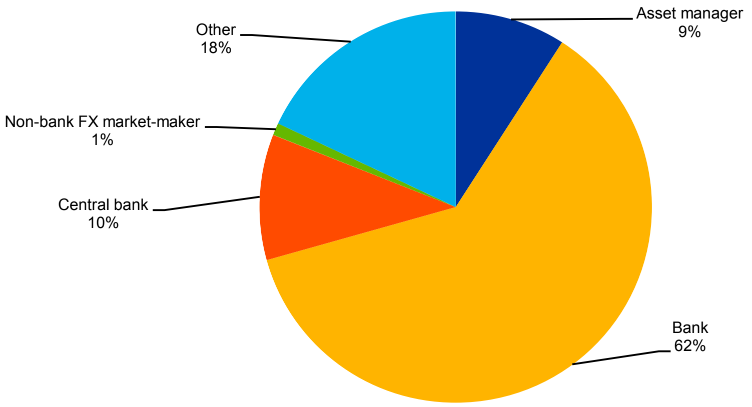
In addition to encouraging market participants to adopt the Code, ESCB central banks have taken the lead by signing up to the Code themselves. ESCB central banks have reviewed their internal practices, undertaken gap analyses to assess their internal FX activities against the applicable principles of the Code, adjusted their internal procedures where necessary and launched regular training sessions for their staff. The ECB has performed its own assessment and published its Statement of Commitment on 29 November 2017. On the same day 14 other ESCB central banks simultaneously issued their Statements of Commitment to the Code. The remaining ESCB central banks have done so in the course of 2018. Well-functioning financial markets are important to central banks for ensuring a smooth transmission of monetary policy to the real economy, from which all citizens should ultimately benefit.

A significant number of market participants across the world have publicly demonstrated adherence to the Code. By October 2018 more than 400 institutions had signed Statements of Commitment to the Code. More than half of these are banks, about 10% are central banks and just under 10% are buy-side market participants (see Chart A). ESCB central banks will continue to reach out to various market participants and their associations in a coordinated way to raise awareness of the Code, encourage widespread adherence and promote sound FX markets. To that end, the ECB is leading the GFXC buy-side outreach working group, which aims to find ways to make it easier for firms across the buy-side community to engage with and commit to the Code.

Chart A

Breakdown of Statements of Commitment by type of market participant

(percentages, October 2018)



Sources: GFXC and ECB calculations.

6 More banknotes, less counterfeits

The ECB and the euro area NCBs are responsible for issuing euro banknotes within the euro area and for maintaining confidence in the currency. The number and value of euro banknotes in circulation have been rising since their introduction in 2002, and at a faster pace than economic growth in recent years. Owing to a combination of factors, including enhanced security features in the new Europa series, cooperation with law enforcement, and communication and training efforts at European and national level, the number of counterfeits has further decreased to a very low level. The introduction of the new €100 and €200 banknotes with their new, innovative security features on 28 May 2019 will complete the Europa series.

6.1 Steady increase in banknote circulation

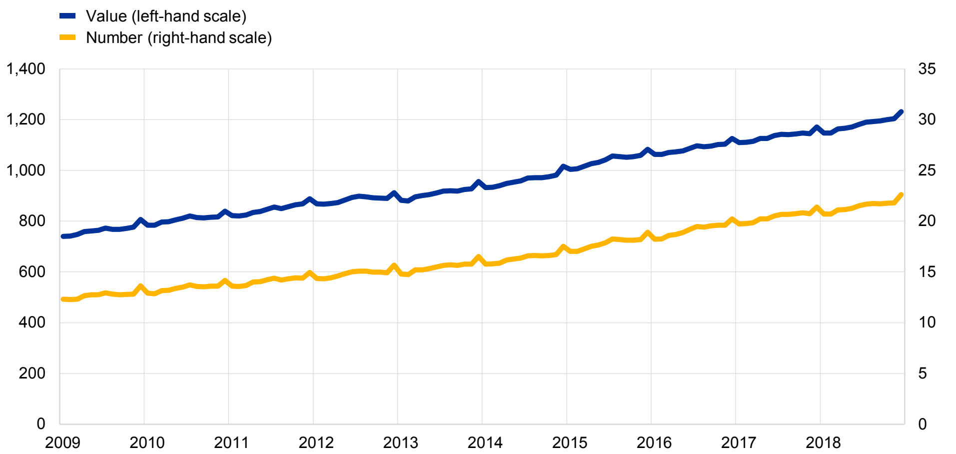
The number and value of euro banknotes in circulation have been growing continuously

In 2018 the number and value of euro banknotes in circulation grew by around 5.6% and 5.2% respectively. At the end of the year there were 22.6 billion euro banknotes in circulation, with a total value of €1,231 billion (see Charts 23 and 24). The €100 banknote had the highest annual growth rate, reaching 6.9% in 2018. The total value of €100 banknotes in circulation at the end of 2018 stood at €280 billion, which is equal to the combined value of all euro banknote denominations in circulation in May 2002. Growth in the €50 banknote remained dynamic, at 6.3%.

Chart 23

Number and value of euro banknotes in circulation

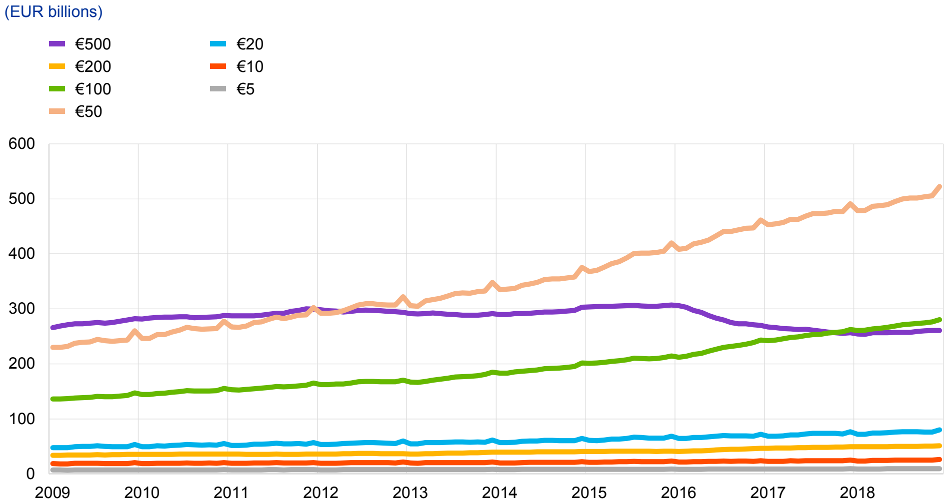
(left-hand scale: EUR billions; right-hand scale: billions)



Source: ECB.

Chart 24

Value of euro banknotes in circulation by denomination



Source: ECB.

By value, one-third of euro banknotes are held outside the euro area

It is estimated that, in terms of value, around one-third of the euro banknotes in circulation are held outside the euro area. These notes are predominantly held in neighbouring countries and are mainly the higher denominations. They are used as a store of value and for settling transactions in international markets.

Production of euro banknotes is shared among euro area NCBs, which were altogether allocated the production of around 4 billion banknotes in 2018.

The total number of euro coins in circulation increased by 3.7% in 2018, to 130.7 billion at the end of the year. The value of coins in circulation rose to €29.0 billion, 3.6% higher than at the end of 2017.

In 2018 euro area NCBs checked the authenticity and condition of some 31 billion banknotes, withdrawing around 5 billion from circulation as unfit. The Eurosystem also continued its efforts to help banknote equipment manufacturers to ensure that their machines meet the ECB's standards for checking euro banknotes for authenticity and condition prior to recirculation. In 2018 credit institutions and other professional cash handlers checked some 37 billion euro banknotes for authenticity and condition using such machines. Information about the Eurosystem survey on cash services offered by credit institutions and the acceptance of cash payments by retailers can be found in Box 6 below.

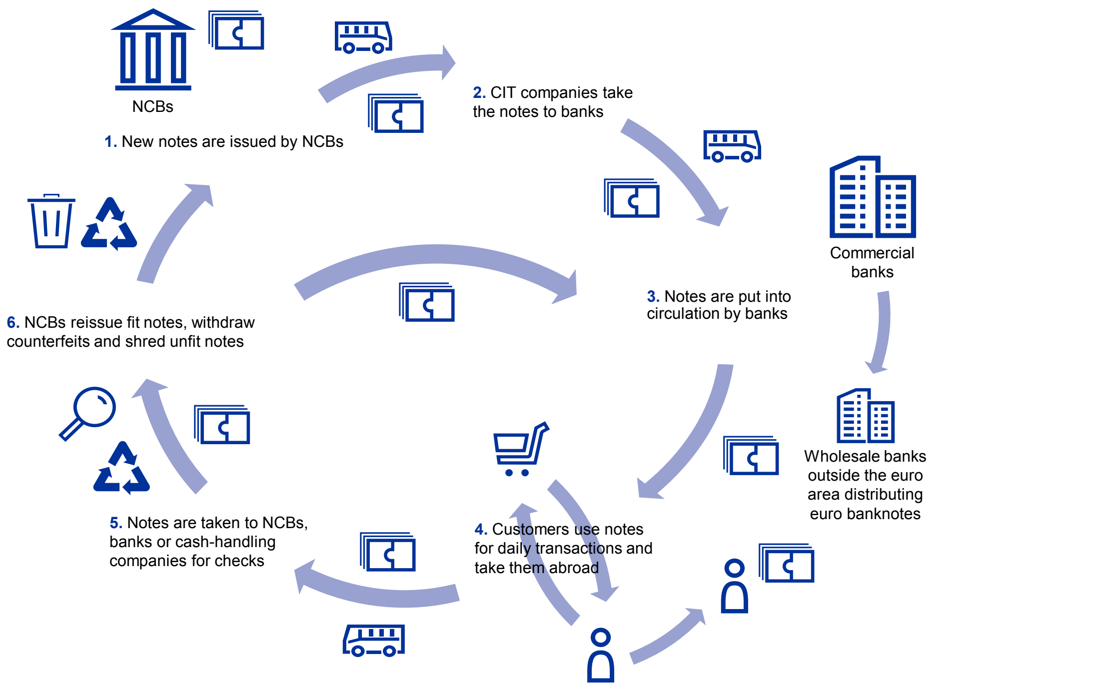
Box 6

Eurosystem survey on cash services offered by credit institutions and the acceptance of cash payments by retailers

Despite the growing share of electronic payments, demand for cash continued to grow in 2018. In current discussions on the role of cash, it is often stated that cash is expensive and that credit institutions are reducing their cash services. As a follow-up to the ECB study on the use of cash by households conducted in 2016, the ECB and 19 Eurosystem NCBs carried out a survey of 87 credit

institutions, 55 professional cash-handling (or cash-in-transit – CIT) companies and 157 businesses (e.g. shops, retailers, restaurants) in 2018 with the aim of exploring how the different stakeholders in the cash cycle perceive cash (see Figure A) and how the efficiency of the cash infrastructure could be improved. The survey data were collected via interviews with the stakeholders. Therefore, the results of the survey are of a qualitative nature and the figures presented below should be viewed with caution.

Figure A
The cash cycle in the euro area



Source: ECB.

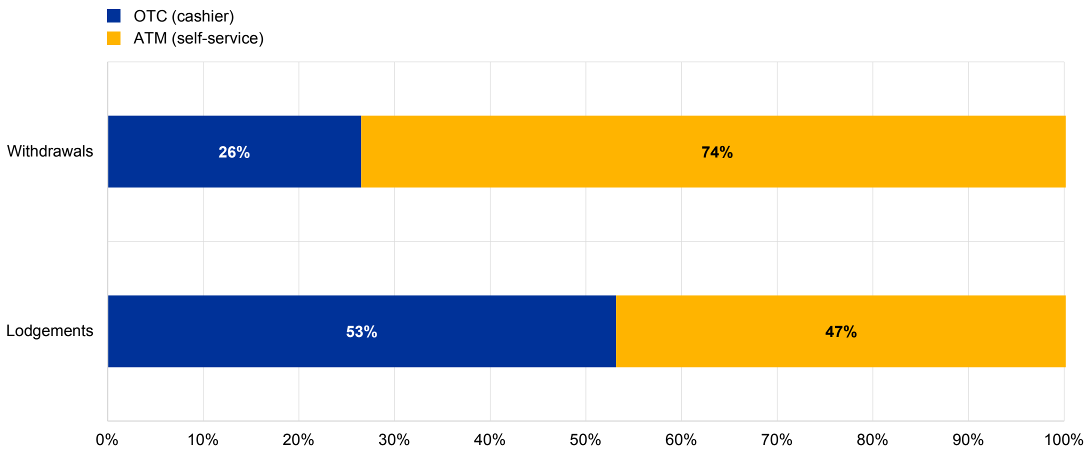
Cash services of credit institutions

While all credit institutions described their cash services to customers as resource and cost-intensive, 75% of them rated these services as important or very important, 20% were neutral, and only 5% rated cash services as unimportant. Cost pressures on banks continue to drive the automation of cash management processes and the extension of self-service banking. The gradual replacement of traditional automated teller machines (ATMs) (simple cash dispensers) with multi-purpose ATMs, in particular cash-recycling machines with the option to also deposit cash, is set to continue in the coming years, and this trend is supported by technical innovations in the industry. According to the survey, it is estimated that at present around 75% of all euro banknotes withdrawn by customers are withdrawn via self-service banking, while deposits of banknotes by customers are evenly split between attended (over-the-counter, OTC) services and unattended (automated) services (see Chart A).

Chart A

Degree of automation of banknote services at credit institutions

(percentages)

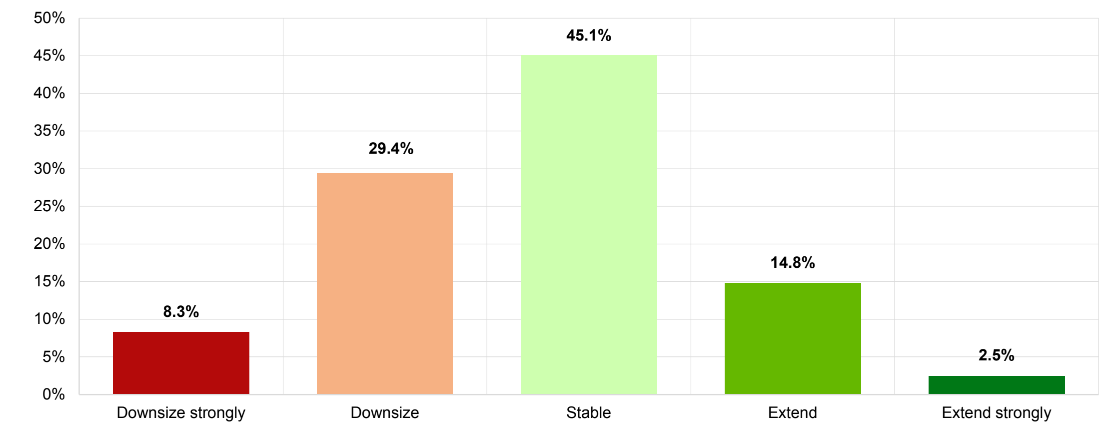


Source: 2018 survey of credit institutions by Eurosystem NCBs.

For cost-efficiency reasons, credit institutions carefully analyse the economic viability of ATM locations and underused machines are relocated or decommissioned. Other factors leading to a downsizing of ATM networks include, for example, bank mergers and interbank cooperation models which allow customers to use ATMs provided by other institutions free of charge. Such ATM network downsizing can currently be observed in the Netherlands, France and Portugal. By contrast, in Italy, Greece and Cyprus, ATM networks are growing. Chart B gives an overview of the banks' medium-term plans for the operation of ATM networks, which shows that the current diverging trends may continue in the years ahead. One efficient way of offering small-scale cash supplies to citizens is cashback schemes in which retailers disburse cash to customers in connection with card payments for goods or services. Cashback schemes are currently operated in 11 euro area countries, although only on a very limited scale in some of them, and are seen as an extra service that retailers can offer to their customers.

Chart B
Planned development of ATM networks by banks in the euro area

(percentage of banks)

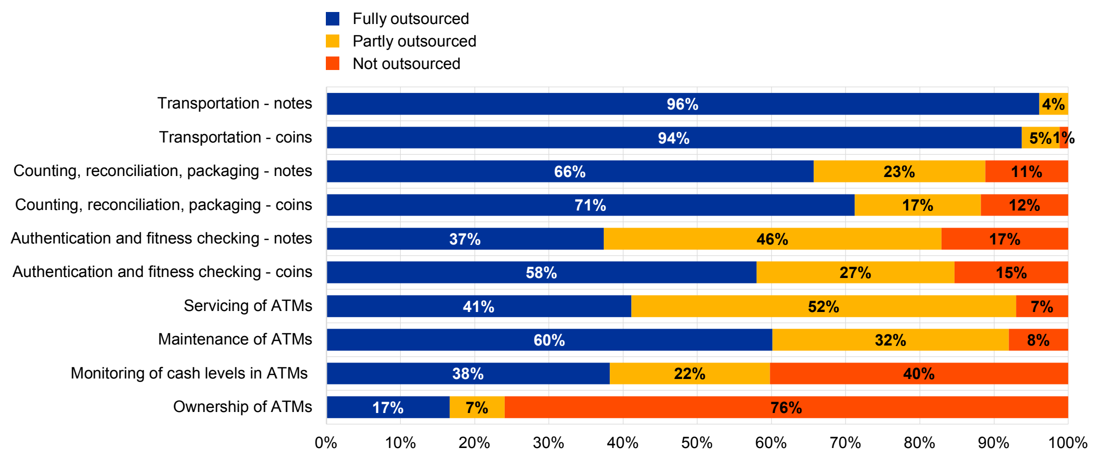


Source: 2018 survey of credit institutions by Eurosystem NCBs.
Note: The chart shows the responses from 81 credit institutions in 17 euro area countries (excluding Austria and Finland) to the question: "What are your current plans regarding your ATM network for the next five to seven years?"

The transportation of cash between retailers, commercial cash centres and NCBs and internal cash management processes are widely outsourced to professional cash-handling companies, especially in the case of coins. Chart C gives an overview of outsourcing of the main cash-handling activities. Major shifts in the coming years are not expected, suggesting that banks already manage their cash-handling operations efficiently.

Chart C
Degree of outsourcing of cash-related processes by banks

(percentages)



Source: 2018 survey of credit institutions by Eurosystem NCBs.
Note: Based on responses from 85 credit institutions in 18 euro area countries (excluding Austria).

There is potential for more efficiency in the area of coin handling, as the logistics were seen as laborious and the performance of coin-processing machines was rated as less satisfactory than that of banknote-processing machines. According to credit institutions, introducing more flexibility in the mandatory checking of coins and ending the use of €0.01 and €0.02 coins are possible ways to improve the efficiency of cash handling. Credit institutions mentioned that coin supply could also be

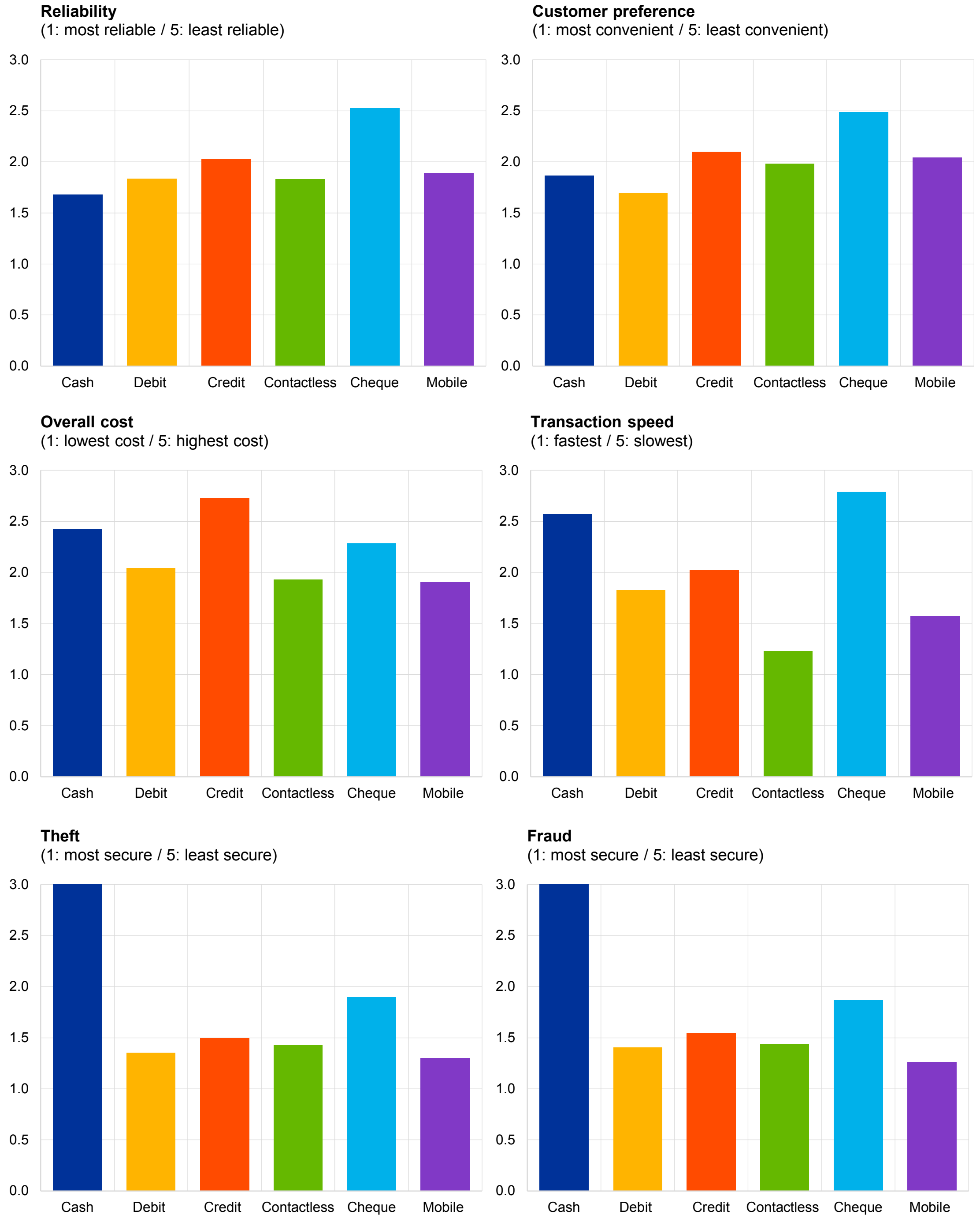
improved if NCBs and issuing authorities were to adjust their wholesale operations and offer more cash services closer to where they are needed by retailers.

Retailers' acceptance of cash payments

The wide variety of retail businesses made it difficult to obtain representative qualitative results from the survey. The survey nonetheless provides a good indication of retailers' views at euro area level, as companies of different sizes from various sectors were interviewed. Overall, retailers rated reliability of payment transactions and customers' settlement preference as the most relevant criteria when assessing payment instruments. Of secondary importance were transaction speed and total costs associated with payments, followed by security aspects. According to these criteria, cash scored well, especially among smaller retailers, whose internal cash-handling costs are generally lower than the fees for electronic payments, and in countries where banks charge low fees, or none at all, for their cash services (see Chart D).

Chart D

Retailers' criteria for accepting various different means of payment



Source: 2018 survey of retailers by Eurosystem NCBs.
Note: The chart shows average ratings from 1 (best score) to 5 (worst score).

Retailers suggested several ways to make the cash cycle more efficient, including lowering bank fees for cash deposits, crediting cash deposits faster (instantly) to bank accounts and distributing more €5 notes via ATMs to reduce their need for change. Furthermore, retailers expressed a desire for more competition in the commercial cash-handling business. In some Member States retailers also called for greater involvement of the NCB in the coin supply, including direct access to NCB coin

services. Finally, the discontinuation of €0.01 and €0.02 coins (combined with rules on rounding the total amount payable to the nearest 5 cents) was frequently proposed as a measure to reduce costs.

The survey results suggest that the vast majority of credit institutions plan to continue to offer an appropriate range of cash services, with increased use of self-service banking. Nevertheless, as over one-third of the surveyed credit institutions plan to downsize their ATM networks, the ECB and Eurosystem NCBs will monitor the cash cycle and banks' cash services more closely in future. Although the survey results do not give rise to concerns about the acceptance of cash in the retail sector, in the evolving payments landscape it is important that cash is not disadvantaged, that it remains widely accepted for payments and that its role as legal tender is not undermined.

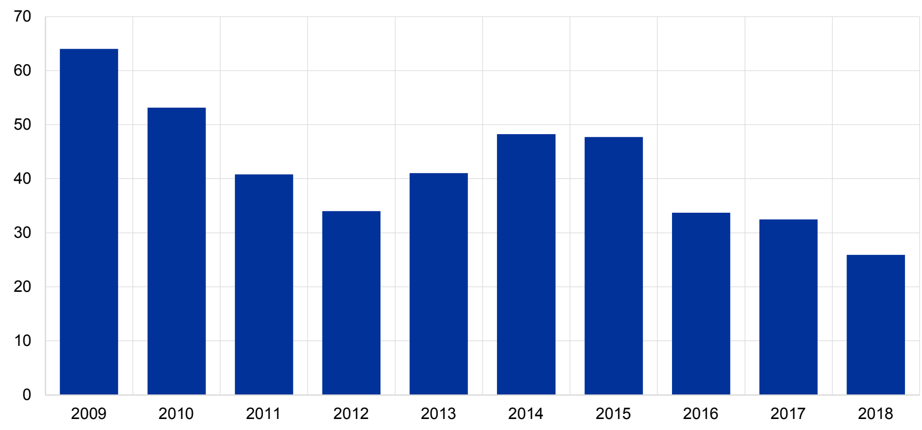
6.2 Euro banknote counterfeiting remained low and declined further

The total number of counterfeit euro banknotes decreased further in 2018, with around 563,000 counterfeits being withdrawn from circulation. This development is the result of a combination of factors, including enhanced security features in the new Europa series, cooperation with law enforcement, and communication and training efforts at European and national level. Compared with the number of genuine euro banknotes in circulation, the proportion of counterfeits has further decreased and is very low. Long-term developments in the quantity of counterfeits removed from circulation are shown in Chart 25. Counterfeiters mainly target €20 and €50 banknotes, which together accounted for more than 80% of the total number of counterfeits seized in 2018. The share of counterfeit €20 banknotes declined further in 2018.

Chart 25

Number of counterfeit banknotes per million genuine euro banknotes in circulation

(parts per million)



Source: ECB.

The ECB advises the public to remain alert and remember the "feel-look-tilt" test

In spite of a decline in the deceptiveness of counterfeits withdrawn from circulation, the ECB continues to advise the public to remain alert to the possibility of fraud, to

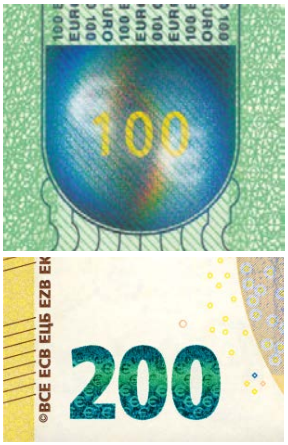
remember the "feel-look-tilt" test, and not to rely on just one security feature. In addition, training is offered to professional cash handlers on a continuous basis, both in Europe and beyond, and up-to-date information material is being made available to support the Eurosystem's fight against counterfeiting. The ECB also cooperates with Europol, Interpol and the European Commission in pursuit of this goal.

6.3 €100 and €200 banknotes with enhanced security features unveiled

New €100 and €200 banknotes with enhanced security features were unveiled on 17 September 2018. After the €5, €10, €20 and €50 banknotes, the €100 and €200 banknotes are the last two denominations of the Europa series and will enter into circulation on 28 May 2019. This marks the completion of several years of preparation and cooperation within the Eurosystem.

The second series of euro banknotes is complete

The Governing Council of the ECB decided to exclude the €500 from the Europa series, taking into account concerns that this denomination could facilitate illicit activities. In view of the international role of the euro and the widespread trust in euro banknotes, the €500 will remain legal tender and can therefore continue to be used as a means of payment and store of value. Euro banknotes will always retain their value, as any euro banknote can be exchanged for an unlimited period of time at euro area NCBs.



The satellite hologram and the enhanced emerald number are two new security features of the new €100 and €200 banknotes

The ECB and the euro area NCBs have been conducting an information campaign to prepare the general public and professional cash handlers for the introduction of the new €100 and €200 banknotes. Just like the other denominations, the new banknotes are easy to check using the “feel, look and tilt” method, but the two high-denomination banknotes also include new, innovative security features. In terms of value the €100 banknote is the second most used denomination (after the €50), and in terms of number in circulation it ranks third (after the €50 and €20 and ahead of the €5 and €10). The Eurosystem is supporting manufacturers and owners of banknote-handling machines and authentication devices in making preparations for the new banknotes. This includes facilitating equipment testing, the possibility to borrow non-issued banknotes of the Europa series from NCBs and publishing a list of banknote-processing machines which have successfully demonstrated that they can process the new Europa series banknotes.

7 Statistics

The ECB – assisted by the NCBs and, for tasks related to the Single Supervisory Mechanism (SSM), by the NCAs – develops, collects, compiles and disseminates a wide range of statistics which are needed to support the monetary policy of the euro area, the supervisory functions of the ECB, financial stability and various other tasks of the ESCB and the tasks of the ESRB. These statistics are also used by public authorities, financial market participants, the media and the general public, contributing to the fulfilment of the ECB's transparency objective. The ESCB deepened further its cooperation with the European Statistical System, in particular in the reflections and initiatives on measuring globalisation and the activities of multinational enterprises. In 2018 the ESCB continued to provide regular euro area statistics in a smooth and timely manner. In addition, it devoted considerable effort to fulfilling new requirements for high-quality and more granular statistics at the country, sector and instrument level.

7.1 New and enhanced euro area statistics

A clear trend towards granular data to allow fast and flexible analysis

The strategy of the ESCB and its Statistics Committee regarding the collection of data from banks is aimed at standardising and integrating existing ESCB statistical frameworks as far as possible across domains and countries. This approach will rely on clear and harmonised concepts, definitions and requirements, as well as on promoting data standardisation, which would help automate data processing and enhance data quality. Another important component of this strategy is the shift towards a more granular data collection, which allows the fulfilment of new data requirements in a more flexible and timely way, reducing the need for ad hoc requests. The main objectives of this approach are to increase the efficiency of reporting and reduce the burden on banks.

One element of this strategic approach – the ESCB Integrated Reporting Framework (IReF) – aims to integrate banks' statistical reporting requirements into a single collection layer covering all of the ESCB's data needs and requirements. The IReF would also include the transformation rules needed to produce the necessary monetary and financial aggregates fulfilling specific requirements, starting from the integrated collection layer. Another element – the Banks' Integrated Reporting Dictionary (BIRD) – is an input layer which aims to help reporting agents to efficiently organise information stored in their internal systems. It would be complemented by transformation rules applied by banks to fulfil their reporting requirements. Once the IReF is in place, banks will be able to reuse the same set of transformation rules across all euro area countries. The collaborative approach with the banking industry followed by the ESCB is outlined in Box 7.

Box 7

A collaborative approach to ESCB statistics

Decision-makers within the ESCB need high-quality statistics for monetary policy, macroprudential oversight and microprudential supervision. A large part of these statistics are provided by the banking industry. It is therefore important that banks have a good understanding of their reporting obligations to ensure that the data they report to the ESCB are of high quality.

Data quality will also improve if reporting requirements are harmonised and duplicated requests are prevented. With these considerations in mind, the ESCB's Statistics Committee decided to set up a dialogue with the banking industry to exchange views on new and ongoing initiatives in the field of ESCB statistics. The meetings of the Banking Industry Dialogue on ESCB statistics will take place at the ECB, typically once a year. The first meeting took place on 16 March 2018. In line with transparency guidelines, the agenda, the summary and the slides of the presentations are published on the ECB's website.

During the meeting, the participants first exchanged views on medium-term prospects for the harmonisation of reporting requirements through the Integrated Reporting Framework (IReF). Representatives from the banking industry showed their support for the IReF and expressed their wish to harmonise reporting requirements not only for ESCB statistics, but also for data collected for supervisory purposes or specific national or non-ESCB requirements. The banking industry also expressed support for the Banks' Integrated Reporting Dictionary (BIRD), which describes the data to be extracted from banks' internal IT systems to derive reports required by the ESCB, as well as supervisory reporting requirements. This helps improve the quality of the data reported. The ESCB encouraged more commercial banks to join the BIRD initiative so as to ensure steady progress. The ECB also publishes "Banks' Corner" on the "Our statistics" website to provide statistics to the banking community in an easily downloadable fashion.

Since the meeting, the banking industry and the ESCB have continued their dialogue. As a result of the continued exchange of views, the European Banking Federation recently published its principles of integrated reporting in which it reiterated its support for the IReF and BIRD.

In line with the implementation of this strategy, in 2018 the ECB's Directorate General Statistics delivered substantial granular datasets to allow flexible and in-depth multi-criteria analysis. One prominent example is the collection of granular credit and credit risk data under the AnaCredit framework, which started in 2018. AnaCredit is an initiative to collect detailed, timely and harmonised information on individual loans granted by credit institutions to corporates and other legal persons and make it available to users under the appropriate confidentiality rules. Its data model supports the swift derivation of countless combinations of granular data, providing greater flexibility for the analysis carried out by users in various areas of central banking and banking supervision and enhancing the value of such analysis, as well as enabling comparisons with aggregated statistics as part of data quality assurance. Once all euro area NCBs have started full reporting to AnaCredit, it is expected to collect data on around 50 million instruments each month.

Significant progress was also made on the Securities Holdings Statistics Group (SHSG). The SHS dataset is highly granular; data can even be broken down to the

level of individual members of a limited list of banking groups (investors) and to the security (holdings). Among other things, this allows risks and spillovers in financial markets to be identified properly and flexibly. The collection of data on individual securities held by individual banking groups was extended to encompass more banking groups and more attributes. Starting from the third quarter of 2018, the enhanced reporting now covers all banking groups that are directly supervised by the ECB. Moreover, the new attributes are reported in line with the concepts of AnaCredit so that data on loans and securities can be combined and analysed jointly in a harmonised manner. Both AnaCredit and SHS granular datasets rely on a system of registers which hold complete, accurate and up-to-date information on institutional entities (Register of Institutions and Affiliates Data – RIAD) and financial instruments (Centralised Securities Database – CSDB); both registers were significantly enhanced during 2018.

Likewise, over the last year and as foreseen, the capacity of the ESCB's RIAD, which is the shared dataset of reference data on legal and other statistical institutional units, has been extended to strengthen its support to business processes across the Eurosystem and the performance of the tasks of the ESCB and the SSM. Furthermore, in June 2018 the ECB published the RIAD Guideline (Guideline ECB/2018/16), which improves the coordination of the tasks that NCBs conduct with respect to the reporting of reference data to RIAD. In 2018 the ECB initiated an amendment to the Money Market Statistical Reporting Regulation (Regulation ECB/2014/48). The amended Regulation will ensure that transactions with all financial counterparties are covered, strengthen the use of the Legal Entity Identifier (LEI), and firm up the obligations of reporting agents to meet high standards designed to protect the integrity of the information. Following two public consultations, the ECB announced the methodology for calculating the euro short-term rate (€STR) on 28 June 2018 (see Section 5.1). Publication of the €STR will begin by October 2019. Meanwhile, the ECB has started publishing figures (referred to as the pre-€STR) which market participants can use to assess the suitability of the new rate in advance of it becoming available, and adjust their processes and procedures to ensure a seamless transition. The pre-€STR includes daily historical time-series data from 15 March 2017 onwards.

Macro statistics are evolving to remain fit for purpose

In order to remain fit for purpose and meet users' needs in a changing world, ECB macro statistics are also continuously evolving. A new ECB Regulation on statistical reporting requirements for pension funds (Regulation ECB/2018/2) was published on 17 February 2018. It is aimed at increasing transparency and improving data comparability in this fast-growing sector of the financial industry. The Regulation will remedy shortcomings of the current unharmonised and incomplete quarterly statistics on pension funds published since June 2011, in particular the limited dissemination of transaction data due to insufficient data quality.

The ECB Guideline on monetary and financial statistics was amended in 2018 (Guideline ECB/2018/17). It now provides for the transmission of further data to the ECB to the extent they are available in NCBs. These data include monthly data on the adjustment of monetary financial institution (MFI) loans to take into account activities related to loan sales and securitisation, notional cash pooling, MFI positions vis-à-vis

the Single Resolution Board, a breakdown of MFI capital and reserves into sub-categories, and data identifying undertakings for collective investment in transferable securities within investment fund statistics.

The ECB Guideline on external statistics was also amended (Guideline ECB/2018/19) to address new analytical requirements in the area of monetary policy and financial stability, including to support further integration between quarterly balance of payments and international investment position statistics and national (including sectoral) accounts. The main changes result in additional sectoral and geographical detail. These data will be reported from March 2021 onwards.

Macroeconomic statistics may greatly benefit from newly developed granular databases in a number of ways. Linking macro data and granular data may enhance the quality of statistics, provide new statistical outputs and improve analytical flexibility. In this context, the ECB proceeded with its project linking micro data (Household Finance and Consumption Survey) and macro data (Sector Accounts) on households' assets and liabilities. The aim is to develop macroeconomic information on the distribution of wealth and debt in the household sector, providing new and valuable information for economic analysis.

Joint analysis of near-time micro data integrated across market segments opens the way to analysing more complex, unforeseen and fast-evolving market behaviours in near time. To facilitate such progress, the ECB has stepped up its engagement and leadership in global data standardisation efforts, such as the now operational Global Legal Entity Identifier System, which needs to be developed to full coverage, and the development of ISO standards. Finally, ongoing efforts towards standardisation of data in the markets will improve the quality of the body of data collected, while reducing operational costs and risks for all.

7.2 Enhanced transparency and communication

In 2018 the ECB continued its efforts to enhance its own transparency by making its statistics more accessible, user-friendly and interactive for external professional users and the general public. In line with the ECB initiative of being "mobile first", all statistical press releases have been enhanced in web formats, allowing easier access to statistics and the sharing of statistics on social media. While ECB statistics are available via its improved statistical flagship, the Statistical Data Warehouse, new statistical narratives and visualisations of euro area and comparable national statistics have been released on the "Our statistics" website. Professional users, such as journalists, can reuse the visualisations in their own newsfeeds or on their websites using their preferred EU language.

Supervisory banking statistics have also evolved in response to the changes in the market and the regulatory environment and to address requests and feedback received from users. The ECB collects and publishes quarterly supervisory banking statistics on institutions directly supervised by the ECB. The data include information on balance sheet composition and profitability, capital adequacy, leverage, funding

and liquidity. Starting from the third quarter of 2018, coverage was extended to include exposures to general government, fair value hierarchy asset breakdowns and internal ratings-based credit risk parameters. In addition, in 2018 the ECB published for the first time individual Pillar 3 information on risk-weighted assets by risk type and by computational method for ECB-supervised global systemically important institutions (G-SIIs) and other systemically important institutions (O-SIIs) (75 institutions), in addition to the three solvency and leverage ratios for 118 significant institutions. This new level of transparency allows stakeholders to perform meaningful comparisons of prudential metrics. In 2018 the ECB improved the communication with the banking industry about the data quality process for supervisory data. Representatives of the banking sector were invited to discuss the development of additional quality checks applied to SSM data. For the sake of transparency, a first list of these checks has been published on the ECB's and NCAs' websites.

The ECB was also one of the co-organisers of the biannual "Conference of European Statistics Stakeholders 2018" in Bamberg, Germany, which offered opportunities for networking and discussion about statistical methodology among stakeholders of European statistics from science, academia, producers of statistics and societal groups. The ECB also celebrated the first 20 years of ESCB statistics with a conference entitled "Ninth ECB Statistics Conference – 20 years of ESCB statistics: What's next?" (see Box 8).

Box 8
20 years of ESCB statistics: What's next?

The ESCB's statistical function has evolved significantly over the last 20 years. The statistics timeline highlights key milestones, such as the broadening of the ECB's functions and tasks with the establishment of the ESRB in 2010 and the SSM in 2013. Other significant developments include successive enlargements of the euro area, the move from the compilation of aggregate data towards providing distributional information, multi-purpose and granular data collections and a rapidly evolving basic statistical infrastructure (reference databases and standards) enabling data integration.

However, three main principles have not changed over the years and will remain crucial in future.

First, data need to be of high quality. Policy decisions are made on the basis of statistical evidence, and the ECB remains committed to this to maintain public trust in statistics, in institutions and in policy decisions based on documented statistics.

Second, collaboration is a key element of the statistical journey and will remain so in the future. Cooperation, both internally within the Eurosystem and the SSM and externally with the banking sector, with the European Statistical System and at international level, is indispensable to achieve our objectives.

Third, ESCB statistics need to be relevant. The ESCB has had to keep pace in the past and will need to continue to do so in future in a world that is changing ever more rapidly. New technologies will help to expand and deepen the use of the significant amount of data collected. Large-scale data will become increasingly available and the statistical profession will benefit from new developments in data science, machine learning and artificial intelligence.

The future strategic objective is aimed at integrating various sources of data to ensure a comprehensive and consistent picture of the financial system. This will require standardisation efforts at European and global level, which the ECB will continue to promote in the years to come. In this regard, the recent incorporation of the ECB into the International Network for Exchanging Experience on Statistical Handling of Granular Data (INEXDA) will help in sharing best practices with other central banks and international organisations and in tackling the new challenges in the management of micro data.

Finally, as financial statistics grow ever more complex, communicating with the public will become increasingly important (see Section 7.2).

The ECB marked the first 20 years of ESCB statistics with the "Ninth ECB Statistics Conference – 20 years of ESCB statistics: What's next?" in Frankfurt on 11 July 2018. At the conference, statisticians, policymakers and academics discussed how the scope of the work had expanded over the years and expressed their views on the future of ESCB statistics.

8 ECB research priorities

Research priorities at the ECB are regularly reviewed and adjusted with the aim of providing sound analytical foundations for addressing the challenges faced by ECB policymakers. Collaboration across the ESCB is fostered by the ongoing activities of three research clusters and two research networks. In an environment characterised by negative policy rates, the transmission of non-standard monetary policy measures and the interplay between monetary policy, financial stability and the real sectors of the economy remained at the core of the 2018 research priorities. Studies assessed the effects of non-standard measures in counterbalancing the economic consequences of adverse financial shocks by reducing market uncertainty and improving access to bank finance for small and medium-sized firms. With the macroprudential policy framework in place, a new research task force was set up to study the interaction between monetary and macroprudential policies and their optimal coordination. Other priorities were the role played by financial factors in firm and household behaviour in the euro area, price and wage-setting dynamics, and the design of institutional and policy arrangements to strengthen EMU. The role of financial frictions in the propagation of monetary policy and economic shocks features prominently in a new version of the ECB's Area-Wide Model and the further development of multi-country models used for forecasting and monetary policy analysis.[53]

8.1 Activities of the ESCB research clusters and the PRISMA project

To further enhance collaboration among ESCB researchers, the Heads of ESCB Research Departments decided in 2016 to launch three research clusters. The purpose of the clusters is to coordinate efforts in high-priority research fields via workshops and joint research projects (see Figure 2).

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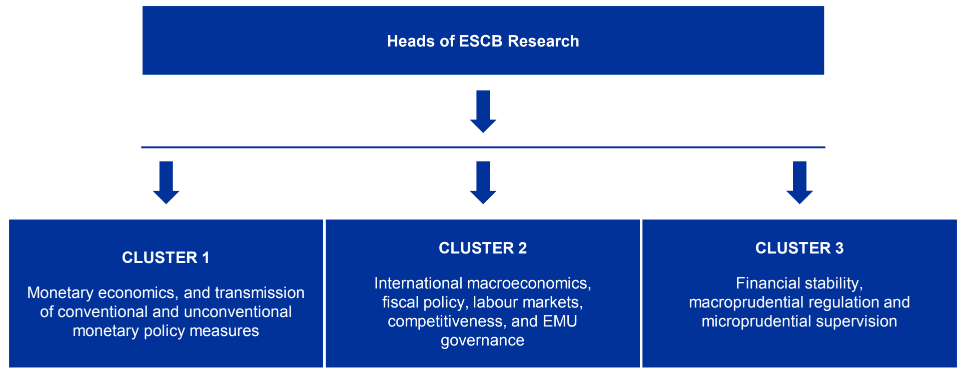
53 More detailed information on the ECB's research activities, including information on research events, publications and networks, is provided on the ECB's website.

Figure 2
ESCB research clusters



Source: ECB.
Note: Structure of the ESCB research clusters as decided by the Heads of ESCB Research Departments in 2016.

Research coordination was fostered by the ongoing activities of three ESCB research clusters

In 2018 the research clusters organised a number of workshops, with research teams addressing issues such as the optimal design of monetary policy under uncertainty, financial market imperfections, and international spillovers. In relation to financial stability, one workshop discussed the implications of bank capital and liquidity requirements for bank behaviour and money markets. Another research strand focused on the microeconomic determinants of productivity growth, in particular the role of financial frictions, credit misallocation and the organisation of production. The preliminary results highlighted that it is important to take into account the role of small firms in order to understand the patterns of aggregate productivity growth.

The HFCN continued its work on the third wave of its survey

Among the Eurosystem/ESCB research networks, the Household Finance and Consumption Network (HFCN) continued its work on the third wave of the Household Finance and Consumption Survey, the results of which are planned to be released in 2019. HFCN research has, among other things, studied the implications of household heterogeneity for monetary policy transmission. For example, researchers from the HFCN have quantified how monetary policy affects the consumption of individual households depending on their employment status and the structure of their portfolios. The finding that monetary policy disproportionately affects employment in the lower parts of the income distribution implies that expansionary monetary policy in the euro area has led to a reduction of inequality in income and consumption. Research of the network has also progressed in areas such as the effects of uncertainty on household decisions, the financial fragility of households, and the measurement of the upper tail of the wealth distribution. In addition, the survey has also been extensively used by external researchers.

A new research network was set up to study price setting in the retail sector using micro data

PRISMA (price-setting micro data analysis), a new ESCB research network established in 2018 with a mandate from the Governing Council, will study price-setting behaviour of individual firms and in the retail sector using micro price datasets. Research will address the relationship between price setting and aggregate inflation dynamics. In particular, it will be studied whether price-setting behaviour has changed in the period of low inflation and is affected by the monetary stance, the state of the business cycle and the type of aggregate shocks affecting the economy.

With a macroprudential policy framework now in place, a new research task force was set up to study the interaction between monetary and macroprudential policies. One focus of the task force is on the various spillovers between the two policies, including the effects of monetary policy on financial stability and the impact of macroprudential policy measures on the real economy. Given these spillovers, a second focus is on the optimal coordination between the two policies.

8.2 Conferences and publications

The Sintra Forum and ARC contributed to maintaining the dialogue with academia and policy institutions

In order to maintain its extensive dialogue with economists in academia and other policy institutions, the ECB organised several high-level research events in 2018, including the ECB Forum on Central Banking in Sintra and the ECB's second Annual Research Conference (ARC). The former conference focused on the origins and implications of the low inflation dynamics that characterised the post-crisis recoveries in many advanced economies, including price and wage setting and the role of inflation expectations. ARC 2018 featured innovative research on topics such as the role of asset markets in signalling monetary policy, mortgage markets, the evolution of competitiveness in financial and goods markets, and globalisation. Other important conferences related to structural reforms in the euro area, global trade, labour markets and digitalisation, and monetary and macroprudential policies.[54]

Many of the ECB's research activities also resulted in publications in scientific journals and working papers

Many of the ECB's research activities also resulted in the publication of papers in scientific journals and working papers. In 2018, 98 papers prepared by ECB staff were published in the ECB's Working Paper Series. In addition, a number of more policy-oriented analytical studies were published via the ECB's Occasional Paper Series, Statistics Paper Series and Discussion Paper Series. This pool of high-quality research provided the basis for an enhanced communication of ECB research findings to a wider audience, with 12 articles being published in the ECB's Research Bulletin during 2018.[55]

[54] All papers, discussions and speeches of the Sintra Forum can be found in the ebook and video recordings of all sessions can be watched on the ECB's YouTube channel.

[55] The ECB's Research Bulletin is a web-based platform for the dissemination of important research findings to a wider audience. The issues of this publication are available on the ECB's website.

9 Legal activities and duties

This chapter deals with the jurisdiction of the Court of Justice of the European Union concerning the ECB, reports on ECB opinions and cases of non-compliance with the obligation to consult the ECB on draft legislation falling within its fields of competence, as well as monitoring compliance with the prohibition of monetary financing and privileged access.

9.1 Jurisdiction of the Court of Justice of the European Union concerning the ECB

The General Court dismissed the action for damages against the ECB relating to the restructuring of Greece's debt in 2012

In March 2018 the General Court of the European Union (the "General Court") dismissed the action for damages brought by a private law-governed association of pensioners (ESTAMEDE) against the ECB in Case T-124/17. Members of ESTAMEDE are beneficiaries of the Greek Pension Fund for Engineers and Public Works Contractors. The damages claimed related to the haircut affecting certain Greek government bonds in the context of a partial restructuring of Greece's sovereign debt in 2012 allegedly suffered by the pension fund and its beneficiaries and not by the association itself. The application attempted to attribute to the ECB various breaches of EU law and principles, including fundamental rights protected by the EU Charter of Fundamental Rights such as the right to property. With its order, the General Court dismissed the action as manifestly inadmissible, without examining the substance of the case, thus excluding any liability of the ECB for the damages claimed. The General Court held that the applicant lacked standing before the General Court and the application failed to fulfil the formal requirements of admissibility.

The General Court dismissed actions for damages against the ECB relating to the 2013 resolution measures in Cyprus

In July 2018 the General Court also dismissed the actions for damages brought against, amongst others, the ECB by some depositors, shareholders and bondholders in the Cypriot banks which were subject to the 2013 resolution measures (Cases T-680/13 and T-786/14). The judgements follow the 2016 decisions of the Court of Justice of the European Union (the "Court of Justice") in two appeal cases (the Mallis[56] and Ledra[57] cases) that concerned similar subject matters. The applicants alleged that the relevant resolution measures were imposed by the ECB and other defendants through, among others, their involvement in the Eurogroup meetings, their role in the negotiation and adoption of the Cypriot Memorandum of Understanding, and the ECB Governing Council decisions relating to the emergency liquidity assistance. The General Court found that the ECB and other defendants did not commit any breach of the right to property, the principle of legitimate expectations or the principle of equal treatment. The two judgements have been appealed before the Court of Justice.

[56] Joined Cases C-105/15 P to C-109/15 P.

[57] Joined Cases C-8/15 P to C-10/15 P.

The Court of Justice decided that the consideration of the questions referred for a preliminary ruling revealed no factor that affects the validity of the PSPP

In December 2018 the Court of Justice decided that consideration of the questions referred for a preliminary ruling by the German Federal Constitutional Court in Case C-493/17 (Weiss) has revealed no factor of such a kind as to affect the validity of the ECB's secondary markets public sector purchase programme (the "PSPP"). First, the PSPP falls within the area of monetary policy and observes the principle of proportionality. The PSPP's specific objective can be attached to the primary objective of the Union's monetary policy, the specification of which in quantitative terms as the maintenance of inflation rates at levels below, but close to, 2% over the medium term does not appear to be vitiated by a manifest error of assessment or to go beyond the framework established by the Treaties. In addition, the ECB weighed up the various interests involved so as to actually prevent disadvantages which are manifestly disproportionate to the PSPP's objective from arising on implementation of the programme. In view of the risks to which the substantial volume of asset purchases under the PSPP might possibly expose the NCBs, the ECB decided against a general rule on loss sharing. Second, the PSPP is compatible with the prohibition of monetary financing. The fact that the PSPP makes it possible to foresee, at macroeconomic level, that a significant volume of bonds will be purchased on the secondary markets does not afford a given private operator such certainty that he can act, de facto, as an intermediary of the Eurosystem for the direct purchase of bonds from public authorities and bodies of Member States. Moreover, that macroeconomic foreseeability does not reduce the impetus of Member States to pursue a sound budgetary policy given the temporary and contingent nature of the programme and a series of safeguards that limit the effects of the PSPP on that impetus. The Court of Justice also stated that the prohibition of monetary financing does not preclude either the holding of bonds until maturity or the purchase of bonds with a negative yield to maturity. On the basis of this preliminary ruling, the German Federal Constitutional Court will decide on the constitutional complaints indirectly challenging the PSPP.

9.2 ECB opinions and cases of non-compliance

Articles 127(4) and 282(5) of the Treaty on the Functioning of the European Union require that the ECB be consulted on any proposed EU or draft national legislation falling within its fields of competence. All ECB opinions are published on the ECB's website. ECB opinions on proposed EU legislation are also published in the Official Journal of the European Union.

In 2018 the ECB adopted 16 opinions on proposed Union acts and 42 opinions on draft national legislation falling within its fields of competence.

The ECB adopted opinions on proposed EU legislation

At the EU level, the ECB adopted opinions on proposed legislation relating to macro- and microprudential supervisory matters, including the reform of the European Systemic Risk Board[58], the European Banking Authority[59] and the European Securities and Markets Authority[60], the capital treatment of non-performing exposures

58 See CON/2018/12.

59 See CON/2018/19.

60 See CON/2018/26.

and covered bonds[61], the prudential treatment of investment firms[62] and strengthening the role of the European Banking Authority in the prevention of the use of the financial system for money laundering or terrorist financing[63]. The ECB adopted opinions on other proposed Union legislation impacting financial markets, including the reform of covered bond markets[64], the regulation of credit servicers, credit purchasers and the recovery of collateral[65], charges applicable to cross-border payments and currency conversions[66] and the law applicable to the third-party effects of assignments of claims[67]. The ECB also issued opinions on the framework governing EMU, including strengthening fiscal responsibility and the medium-term budgetary orientation in the Member States[68] and the proposed establishment of a European Investment Stabilisation Function[69] and a European Monetary Fund[70]. The ECB also opined on European business statistics[71] and the EU "Pericles IV" anti-counterfeiting training programme[72].

The ECB adopted opinions on draft national legislation concerning NCBs

The ECB adopted opinions on draft national legislation concerning NCBs, including the governance and financial independence of the Central Bank of Cyprus[73], the institutional independence of Българска народна банка (Bulgarian National Bank)[74], the State audit of Hrvatska narodna banka[75], the liability regime concerning the Board members and employees of Banca Naţională a României[76], the minimum reserve requirements of Magyar Nemzeti Bank[77] and the conferral of a wide variety of tasks on NCBs relating to matters such as supervising compliance with interchange fees for card-based payment transactions[78], the security and protection of critical infrastructures[79], the security of network and information systems in the financial sector[80], securitisation activities[81], the issuance of covered bonds[82], the procedures for the conversion of Swiss franc-denominated loans into euro-denominated loans[83], credit institutions' activities pertaining to markets in financial instruments[84], credit

61 See CON/2018/32 and CON/2018/37.
62 See CON/2018/36.
63 See CON/2018/55.
64 See CON/2018/37.
65 See CON/2018/54.
66 See CON/2018/38.
67 See CON/2018/33.
68 See CON/2018/25.
69 See CON/2018/51.
70 See CON/2018/20.
71 See CON/2018/1.
72 See CON/2018/35.
73 See CON/2018/23.
74 See CON/2018/53.
75 See CON/2018/17 and CON/2018/45.
76 See CON/2018/56.
77 See CON/2018/48.
78 See CON/2018/10 and CON/2018/11.
79 See CON/2018/15.
80 See CON/2018/27.
81 See CON/2018/16.
82 See CON/2018/18.
83 See CON/2018/21.
84 See CON/2018/2 and CON/2018/3.

institutions' key information documents for packaged retail and insurance-based investment products[85], powers to conduct inquiries and take enforcement measures in response to the provision of false or misleading information by credit and financial institutions[86], tasks regarding the regulation of certain savings accounts[87], cooperating with competent authorities in relation to the return of funds from designated tax havens[88], the maintenance of a central register of bank accounts and financial transactions[89] and a national insurance claims database[90]. A recurring theme in a number of these opinions was the assessment of the conferral of new tasks on NCBs against the prohibition of monetary financing under Article 123 of the Treaty in view of central bank financing of the performance of government tasks.

The ECB also issued opinions on draft national laws concerning the macro- and microprudential supervision of credit and financial institutions, including the establishment of close cooperation between the ECB and Българска народна банка (Bulgarian National Bank)[91], the reform of the Italian popolari banks and cooperative banks[92], macroprudential tools in Spain[93], the macroprudential mandate of the central bank and the governance of credit institutions in Bulgaria[94], macroprudential tools to remedy imbalances in the residential real estate sector and the reciprocal implementation of macroprudential tools in Luxembourg[95], the introduction of an interbank funding ratio in Hungary[96], mortgage amortisation requirements in Sweden[97], the fixed remuneration of directors of systemically relevant credit institutions in the Netherlands[98], the transmission of supervisory data for statistical purposes in Germany[99], the reorganisation of the Polish Financial Services Authority[100], and the funding sources and governance of the Malta Financial Services Authority[101].

The ECB adopted opinions on other draft national laws impacting credit and financial institutions, including the framework for mortgage arrears resolution and the regulation of the business of owning credit agreements in Ireland[102], the legal framework for covered bonds in the Czech Republic and Slovakia[103], the framework for

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85 See CON/2018/5.
86 See CON/2018/24.
87 See CON/2018/28.
88 See CON/2018/8.
89 See CON/2018/4 and CON/2018/57.
90 See CON/2018/43.
91 See CON/2018/49.
92 See CON/2018/42.
93 See CON/2018/58.
94 See CON/2018/52.
95 See CON/2018/9 and CON/2018/34.
96 See CON/2018/7.
97 See CON/2018/30.
98 See CON/2018/44.
99 See CON/2018/40.
100 See CON/2018/50.
101 See CON/2018/6.
102 See CON/2018/31.
103 See CON/2018/18 and CON/2018/39.

securitisations in Cyprus[104], the conversion of Swiss franc loans into euro loans in Slovenia[105], the remuneration formula of certain French regulated savings accounts[106], and the preparedness obligations of the Finnish financial sector in a contingency/emergency situation[107].

ECB opinions on the impact of national legislation related to information and cybersecurity on critical market infrastructures and prudential supervision

Reflecting the growing importance of cybersecurity issues, the ECB issued opinions to a number of Member States on the impact of national legislation related to information and cybersecurity on critical market infrastructures and the prudential supervision of credit institutions[108]. The ECB also opined on new rounding rules for payments denominated in euro in Belgium[109].

Clear, important and/or repetitive cases of non-consultation with regard to EU legislation

One case of non-compliance with the obligation to consult the ECB on proposed Union legislation was recorded. The ECB was not consulted on the proposal for a regulation of the European Parliament and of the Council on the law applicable to the third-party effects of assignments of claims. The ECB issued an own-initiative opinion in that case noting the shortcomings of the proposed choice of the law governing the third-party effects of assignments of claims[110]. This non-consultation case is considered as a "clear and important" case of a failure to consult the ECB. The two non-compliance cases of 2017, together with the non-compliance case identified in 2018, are considered "clear and repetitive".

Cases of non-consultation relating to national legislation

In 2018 one horizontal issue was identified regarding the national laws implementing Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union. As a consequence of the discretion in the transposition of this Directive exercised by certain Member States, the ECB is currently assessing the extent to which its fields of advisory competence have been materially affected so far as concerns the NCBs, payment and settlement systems and/or the ECB's tasks concerning the prudential supervision of credit institutions. To date, the ECB has issued one non-consultation letter to a national authority with respect to this matter (Cyprus). Furthermore, the ECB was not consulted by the Romanian authorities on a Government Emergency Ordinance introducing a tax on bank assets.

104 See CON/2018/16.
105 See CON/2018/21.
106 See CON/2018/28.
107 See CON/2018/46.
108 See CON/2018/15, CON/2018/22, CON/2018/27 and CON/2018/39.
109 See CON/2018/41.
110 See CON/2018/33.

9.3 Compliance with the prohibition of monetary financing and privileged access

Pursuant to Article 271(d) of the Treaty on the Functioning of the European Union, the ECB is entrusted with the task of monitoring the compliance of the EU national central banks (NCBs) and the ECB with the prohibitions implied by Articles 123 and 124 of the Treaty and Council Regulations (EC) Nos 3603/93 and 3604/93. Article 123 prohibits the ECB and the NCBs from providing overdraft facilities or any other type of credit facility to governments and EU institutions or bodies, as well as from purchasing in the primary market debt instruments issued by these institutions. Article 124 prohibits any measure, not based on prudential considerations, which establishes privileged access by governments and EU institutions or bodies to financial institutions. In parallel with the Governing Council, the European Commission monitors Member States' compliance with the above provisions.

The ECB also monitors the EU central banks' secondary market purchases of debt instruments issued by the domestic public sector, the public sector of other Member States and EU institutions and bodies. According to the recitals of Council Regulation (EC) No 3603/93, the acquisition of public sector debt instruments in the secondary market must not be used to circumvent the objective of Article 123 of the Treaty. Such purchases should not become a form of indirect monetary financing of the public sector.

The monitoring exercise conducted for 2018 confirms that the provisions of Articles 123 and 124 of the Treaty and the related Council Regulations were in general respected.

The monitoring exercise revealed that most EU NCBs in 2018 had remuneration policies for public sector deposits in place that fully complied with the remuneration ceilings. However, a few NCBs need to ensure that the remuneration rate for public sector deposits is not above the ceiling.

The ECB's 2016 Annual Report stated that the establishment and funding of MARK Zrt., an asset management company, by the Magyar Nemzeti Bank constituted a violation of the monetary financing prohibition that needed to be corrected. Following the completion of the necessary corrective actions by the Magyar Nemzeti Bank, the case has been closed.

Following up on the concerns raised in the ECB's Annual Reports as of 2014, the ECB has continued to monitor several programmes launched by the Magyar Nemzeti Bank in 2014 and 2015. The Magyar Nemzeti Bank in 2018 continued taking actions to alleviate the ECB's concerns and closed a programme of purchases of Hungarian artworks and cultural properties in 2018. However, in view of their multitude, scope and size, the ECB will continue to closely monitor compliance of these operations with the prohibition of monetary financing and of privileged access. Moreover, the ECB will continue monitoring the involvement of the Magyar Nemzeti Bank in the Budapest Stock Exchange as the purchase of the majority ownership of the Budapest Stock Exchange by the Magyar Nemzeti Bank in November 2015 may still be seen as giving rise to monetary financing concerns.

The reduction of IBRC-related assets by the Central Bank of Ireland during 2018 through sales of long-duration floating rate notes is a significant step in the direction of the necessary full disposal of these assets. A more ambitious sales schedule would further mitigate the persisting serious monetary financing concerns.

10 Key issues on the European and international agenda

In 2018 the ECB maintained its close dialogue with various European fora and institutions, including the European Council, the ECOFIN Council, the Eurogroup, the European Parliament and the European Commission. The economic outlook, deepening EMU and matters related to the EU fiscal and economic governance framework were among the topics discussed at European Council, Eurogroup and ECOFIN Council meetings in which the President of the ECB and other members of the Executive Board took part.

10.1 Deepening EMU

In 2018 the ECB took part in discussions on strengthening EMU, providing technical advice in its areas of competence and expertise. Discussions in EU fora focused on three main issues: completion of the banking union, reform of the European Stability Mechanism (ESM) and the design of a euro area instrument for macroeconomic stabilisation. Key inputs for this debate included a reflection paper published by the European Commission in May 2017, with related proposals, and the Franco-German agreement reached at Meseberg in June 2018.

The banking union is gradually being completed

First, as regards the banking union[111], a regulatory package was being finalised which includes directives and regulations that provide for a leverage ratio to prevent banks from excessively increasing leverage, a strengthening of risk-sensitive capital requirements for banks trading in securities and derivatives, and increased loss-absorbing recapitalisation capacity in global systemically important banks. Furthermore, an agreement was reached on new requirements as regards minimum loss coverage for new non-performing exposures on banks' balance sheets. Moreover, the June and December Euro Summits decided to make the ESM the backstop to the Single Resolution Fund (SRF) for banks in resolution. As regards a European deposit insurance scheme (EDIS), European leaders consider further technical work as necessary, with a high-level working group having been set up that will report back in June 2019. Adhering to all elements of the 2016 roadmap in appropriate sequence, work started on a roadmap for beginning political negotiations on EDIS. Meanwhile, with the support of European banking supervision, euro area banks continued to strengthen their balance sheets, reduce their leverage and further bring down the stock of non-performing loans. Finally, progress on a European capital markets union (CMU) continued, in line with the 2015 CMU Action Plan.

Second, and in the light of ESM reform discussions, the ECB issued an opinion in which it endorsed bringing the ESM into the EU legal framework, improving its precautionary financial assistance instruments whilst ensuring adequate

[111] For a more detailed discussion of the progress on the banking union and capital markets union and the views of the ECB, see Section 3.4 of this Annual Report.

conditionality, and reviewing its governance to ensure swift and credible decision-making based on high-quality independent expert advice.

Third, technical work continued on the design of and timeframe for a fiscal stabilisation instrument, as well as other potential budgetary instruments for the euro area. In line with the Five Presidents Report of 2015, the ECB welcomed this work, highlighting that any fiscal instrument should support aggregate demand, in particular in euro area-wide recessions, whilst avoiding undermining incentives for sound national economic and fiscal policies. The ECB also issued an opinion on the proposal from the European Commission for a European Investment Stabilisation Function (EISF). The December Euro Summit mandated the Eurogroup to work on a budgetary instrument for convergence and competitiveness for the euro area and ERM II Member States on a voluntary basis, in the context of the Multiannual Financial Framework. Other deliberations in EU fora included a proposal by the Commission for a regulation on sovereign bond-backed securities (SBBS).

ESM reform and a stabilisation function featured prominently in discussions

As regards structural economic issues, the European Commission proposed a Reform Support Programme to support the implementation of structural reforms as part of the next Multiannual Financial Framework (2021-2027). The EU also agreed to increase the financial envelope of its already existing Structural Reform Support Programme to bring its total budget to €222.8 million over the period 2017-2020.

As part of the debate on deepening EMU, the ECB frequently stressed that a full application of the budgetary rules and more effective coordination of economic policies remained vital to strengthen the resilience of the euro area and create the confidence among Member States needed to proceed towards further integration. In this respect, progress has been less than satisfactory.

10.2 Discharging accountability

The ECB's accountability is the necessary counterpart to its independence. The ECB is an independent institution which has discretion to use its instruments as it deems necessary to carry out its tasks and fulfil its mandate. Such independence was democratically decided as part of the ratification of the Treaties, which also gave the ECB a clear mandate for which it is held accountable to the public. Accountability, complemented by judicial review by the Court of Justice of the European Union, ensures that independence does not lead to arbitrariness and that the ECB acts in accordance with its mandate.

The ECB is accountable to the European Parliament

The Treaties entrust the European Parliament – as the democratically elected representative body of EU citizens – with a central role in holding the ECB accountable. In 2018 the President of the ECB attended four regular hearings of the Committee on Economic and Monetary Affairs of the European Parliament.[112] The President also attended the Parliament's plenary debate on the ECB Annual Report and the ECB published its feedback on the input provided by the European Parliament

[112] The introductory statements are available on the ECB's website.

as part of its resolution on the ECB Annual Report for 2016.[113] The ECB also discharges its accountability obligations through regular reporting and by answering written questions from Members of the European Parliament (MEPs). In 2018 the President of the ECB received 36 letters containing such questions, the replies to which were published on the ECB's website.[114] Most of the questions raised by MEPs focused on the implementation of the ECB's non-standard monetary policy measures, economic and financial conditions, and ECB and EU institutional issues. Finally, the ECB is also held accountable for its banking supervision activities by both the European Parliament and the EU Council.[115]

The ECB has actively engaged in the debate on central bank independence and accountability

The ECB engaged further in the debate which has emerged in recent years on central bank independence and accountability. In 2018 Executive Board members delivered several speeches on these issues[116] and an article in the Economic Bulletin examined the evolution of the ECB's accountability practices.[117] Among other things, the article provided new quantitative and qualitative evidence on how the ECB's interactions with the European Parliament had intensified and evolved during the crisis in terms of frequency, format and content.

Highest level of support for the euro

According to the Eurobarometer survey[118] in 2018, the euro's popularity reached an all-time high, with 75% of the euro area's 340 million citizens supporting the single currency. This is the highest level of support recorded in the survey since the euro's introduction.

10.3 Implications of Brexit

Brexit-related financial stability risks are assessed more broadly in the November FSR

While not party to the negotiations, the ECB has continued to monitor and assess Brexit-related developments under its mandate. The November 2018 ECB Financial Stability Review (FSR) examined the potential financial stability implications of Brexit for the euro area. Analysis concluded that Brexit poses limited overall risk to euro area financial stability, largely due to the range of options available to the private sector to mitigate potential risks. Transition to a new post-Brexit equilibrium will imply one-off adjustment costs and may entail risks of frictions in some market segments if the transition is not adequately prepared for. However, the risk that the euro area real economy would be deprived of access to financial services following the UK's

113 The feedback on the input provided by the European Parliament as part of its resolution on the ECB Annual Report for 2017 will be published on the same day as this Annual Report.

114 The ECB President's answers to questions from MEPs are published in a dedicated section of the ECB's website.

115 More detailed information is provided in the 2018 ECB Annual Report on supervisory activities.

116 In particular, the speeches given by ECB President Mario Draghi on "Central bank independence" at the Nationale Bank van België/Banque Nationale de Belgique on 26 October 2018 and by Executive Board member Benoît Cœuré on "Central banking in times of complexity" at Sveriges Riksbank on 25 May 2018. These speeches followed other recent examples, such as the speech given by Executive Board member Yves Mersch on "Aligning accountability with sovereignty in the European Union: the ECB's experience" at the ECB Legal Conference on 4 September 2017 and the one given by Benoît Cœuré on "Independence and accountability in a changing world" at the Transparency International EU Event "Two sides of the same coin? Independence and accountability of the European Central Bank" on 28 March 2017.

117 See the article entitled "The evolution of the ECB's accountability practices during the crisis", *Economic Bulletin*, Issue 5, ECB, 2018.

118 See question QA15.1, Standard Eurobarometer 90, wave 90.3, European Commission, December 2018.

departure from the EU appears limited. Similarly, the analysis indicates overall limited risks to the capital position of the euro area banking sector. However, a cliff-edge Brexit could lead to a more broad-based and severe market repricing than that seen in 2018 and could lead to an abrupt increase in risk premia and volatility.

In April 2018 the ECB and the Bank of England set up a joint technical working group, whose mandate focuses on risk management in the period around 30 March 2019 in the area of financial services. The group updated the European Commission and the UK Treasury on its findings in October 2018.

At his February 2018 hearing before the European Parliament, the President of the ECB stressed the importance of making progress on key pieces of EU financial legislation – such as EMIR II – well in advance of Brexit, in order to be prepared for all possible contingencies, including a no-deal scenario.

In the area of European banking supervision, the ECB and national supervisors have focused on the communication and implementation of supervisory expectations concerning Brexit-related issues, as well as the assessment of the Brexit plans and licensing applications of international banks that are relocating activities from the United Kingdom to the euro area and the Brexit plans of euro area banks with material activities in the United Kingdom. Further information can be found in the 2018 ECB Annual Report on supervisory activities.

A withdrawal agreement had not been concluded by the cut-off date of this report.

10.4 International relations

G20

Key issues include trade, financial conditions and the future design of the global financial system

In an environment of continued economic growth, but with increased downside risks to the global outlook, G20 finance ministers and central bank governors discussed the implications of trade tensions for the global economy in 2018, stressing the need to step up dialogue and actions to mitigate risks. G20 members also reviewed the implications of tighter global financial conditions, in particular for emerging market economies. The G20 continued its monitoring efforts aimed at achieving strong, sustainable, inclusive and balanced growth globally and reviewed progress towards the collective growth ambition of 2% by 2018. The measures implemented in this context have prepared the global economy for growth above 2%, albeit to be achieved later than originally anticipated. Finance ministers and central bank governors renewed their commitment to stable exchange rates and the implementation of financial sector reforms. Under Argentina's G20 Presidency, facilitating infrastructure financing and the future of work were among the priorities. The G20 also continued its efforts in the area of international taxation issues and considered the benefits and potential risks related to technological innovations, such as crypto-assets. The G20 reaffirmed its commitment to further strengthening the global financial safety net, with a strong, quota-based and adequately resourced IMF at its centre, and the global

financial architecture. In this context, the G20 Eminent Persons Group on Global Financial Governance published its report "Making the Global Financial System Work for All".

Policy issues related to the IMF and the international financial architecture

The ECB continued to play an active role in discussions about the international monetary and financial system at the IMF and in other fora, promoting a common European position from a central bank perspective.[119] The IMF discussed or initiated important reviews of its policies under the surveillance and lending framework. In February 2018 the IMF introduced important clarifications of its policies related to programme design in currency unions. An interim review of IMF surveillance was concluded in April 2018 and the IMF Independent Evaluation Office issued recommendations on IMF financial surveillance in December 2018. The IMF also initiated a review of conditionality and the design of Fund-supported programmes, as well as a review of the debt sustainability framework for market-access countries. In addition, work on the 15th review of IMF quotas continued in 2018.

The first euro area FSAP was conducted in 2018

In July 2018 the IMF concluded its first euro area Financial Sector Assessment Program (FSAP) – a comprehensive exercise involving several European institutions, including both the central banking and supervisory arms of the ECB. The IMF stressed that banking supervision in the euro area had improved significantly since the creation of the SSM. In addition, while the resilience of large euro area banks has increased, there remain some vulnerabilities related to credit and market risk. The exercise will also inform and facilitate FSAP exercises at euro area country level. The IMF's consultation on euro area policies, which was also concluded in July 2018, noted that the euro area expansion remains robust, albeit slowing to a more moderate pace. Moreover, building up sufficient policy buffers and implementing structural reforms remain of paramount importance in some member countries. In October 2018, at the Annual Meetings in Bali, the IMF launched the Bali Fintech Agenda, which discusses the opportunities and risks entailed by fintech developments and focuses on the implications of such developments for the financial sector.

International central bank cooperation

The ECB is open to sharing its experience across the globe

While considering its limited resources, the ECB continued to respond positively to strong interest from central banks outside the EU in the exchange of experience, reflecting its important role in the global economy and as a European institution.

The ECB widened the geographical reach of its cooperation by concluding a Memorandum of Understanding (MoU) with the South African Reserve Bank. In

[119] The ECB published two occasional papers prepared by the IRC Task Force on IMF Issues on IMF-related topics in 2018. See IRC Task Force on IMF Issues, "Strengthening the Global Financial Safety Net – Moving relations between the IMF and Regional Financing Arrangements forward", *Occasional Paper Series*, No 207, ECB, March 2018, and IRC Task Force on IMF Issues, "A quantitative analysis of the size of IMF resources", *Occasional Paper Series*, No 213, ECB, October 2018.

addition, relations with key central banks in Asia and Latin America were further developed based on existing bilateral MoUs. The ECB also strengthened its cooperation with regional organisations to broaden its outreach. Discussions at Eurosystem level also continued through a meeting of senior Eurosystem representatives and their Latin American counterparts.

The ECB continues to play its role as an EU institution through targeted discussions with central banks in countries that have the perspective of joining the EU. A regional workshop series serves as the main platform, and discussions are organised in close collaboration with EU NCBs where possible. The ECB also contributes to targeted cooperation activities led by EU NCBs to the benefit of such third-country central banks.

11 Enhancing communication

Enhanced engagement with the public: "We have a duty to engage, explain and listen. It is on us to convince." – Benoît Cœuré

Over the past years central bank communication has increasingly become a core element of monetary policy, even becoming a policy tool in itself. By clearly signalling its intentions and communicating policies, especially to the financial markets and expert audiences, the ECB has successfully enhanced the effectiveness of its policies. In the past year the ECB further strengthened its efforts to reach out beyond its traditional audiences. The aim is to engage with wider civil society and have a conversation with and listen to the broader public, using new platforms and formats. Unlike communication with markets and experts, this type of engagement often deals with underlying questions about what the ECB does, why it does it, and how it is relevant to individual people and their communities. By reaching out to a wider audience and engaging in a genuine two-way dialogue, the ECB is seeking to enhance understanding of its role and policies and also to build trust in the ECB as an institution.

Focus on young people

Reaching out to young people in Europe is of particular importance to the ECB. To this end, the ECB launched its "Back to School" programme which encourages ECB staff to visit schools, in particular their own former schools, and join in conversations with students about Europe and the euro, responding to their concerns and sharing some personal insights into what it means to work in an EU institution. In 2018, 77 members of staff took up the initiative, demonstrating the enthusiasm of ECB staff to make the case for the euro, to help bring the EU closer to its citizens and to give something back to their communities.

The ECB goes back to school

The ECB answers questions from young people in Youth Dialogues

In addition, the ECB expanded its "Youth Dialogues" in 2018. These are innovative platforms that allow students and young professionals to enter into genuine dialogue with senior ECB decision-makers. In January, for example, the ECB partnered up with Debating Europe for a youth dialogue with ECB President Mario Draghi. Using the hashtag #AskDraghi, young Europeans were invited to submit questions directly to the ECB, focusing on a range of topics, such as youth unemployment and crypto-currencies. Over 280 questions were received from all around Europe. The top five questions were answered by President Draghi in an interview published on the ECB's website which also received wide media attention.

Many aspects of central bank policy are complex and often difficult for non-experts to understand. However, the ECB is determined to improve the accessibility and appeal of its communications, and has taken novel and innovative steps to this end. One example was an effort to enhance the reach of the ECB Forum on Central Banking in Sintra and make the important and insightful discussions there interesting and accessible to young people. The ECB invited the YouTuber and recent PhD graduate Simon Clark to cover the young economists' session via his social media channels. Through exclusive behind-the-scenes shots and candid interviews with the economists, he provided a fresh perspective on the central banking forum, making its content more understandable and relatable to young people. The YouTube video has already been viewed more than 30,000 times.

The ECB is expanding its digital presence

The digital space is central to the ECB's efforts to be present where people – especially young people – get their news and information. In November 2018 the ECB launched its official Instagram account which, relying predominantly on visuals, seeks to present the human side of the ECB by introducing staff members and sharing experiences of every day working life at the ECB. The concept behind the Instagram account is also educational, spreading visually attractive content through social media

platforms. Furthermore, over 457,000 followers stay in touch with the ECB via its Twitter channel. Beyond that, the ECB has further expanded its online offer, and the ECB's websites now have over 160,000 pages, many of which in 23 languages. A special hub, #EUROat20, commemorating the 20th anniversary of the single currency online was also created in a joint effort with other EU institutions.

As part of the ECB's efforts to reach out beyond the experts and join in conversations about how ECB policy affects local communities and businesses across the euro area, Executive Board member Benoît Cœuré visited rural France in October where he met politicians, factory workers and students to explain the ECB's recent monetary policy decisions, listen to people's concerns and respond to criticism.

An example of reaching out to local businesses and workers, discussing ECB policy – Benoît Cœuré visiting the Vorwerk/Semco factory in Cloyes, France, on 3 October 2018

Finally, the ECB's Visitor Centre, in its first full year of operation, welcomed 20,743 visitors. The Visitor Centre, located in the ECB's main building in Frankfurt, enables citizens to explore the ECB's tasks, history and mission, as well as enter into a conversation with an ECB representative.

12 Good governance, organisational excellence, resilience and environmental performance

Strengthening its reputation as a world-class institution and inspiring, developing and engaging its people are two of the ECB's strategic priorities. In 2018 these priorities guided the ECB in its efforts to: (i) create organisational excellence through a more diverse and inclusive culture and enhanced integrity, transparency and accountability to EU citizens; (ii) build up resilience in the face of technological threats through an enhanced capacity to defend the ECB and the financial ecosystem from cyberattacks; and (iii) ensure a strong environmental performance through a continuous reduction of the ECB's ecological footprint.

12.1 Unlocking excellence through diversity and inclusion

The ECB believes that diversity and inclusion can unlock excellence: diverse teams contain a broader range of viewpoints, leading to better decision-making and more robust results. Fostering diverse teams and inclusive behaviour is vital to ensure the ECB can deliver the best possible outcomes for its staff and for the EU. That is why diversity, respect, an ethical culture and the well-being of its staff are strategic objectives for the ECB.

Diversity and inclusion are key drivers of improved organisational performance

In 2018 the ECB continued its efforts to foster diversity and inclusion as key drivers of improved organisational performance. At the core of these efforts are respect, fairness, inclusiveness and equal opportunities for staff, regardless of, among other things, gender, nationality, religion, sexual orientation, ethnic origin, age, cultural background or disability. The ECB has a number of diversity networks that engage frequently with Human Resources and aim to serve the needs of all aspects of diversity. At the ESCB/SSM level, the ECB has exchanges with NCBs and NCAs regarding best practices in diversity and inclusion, an example of which was the third annual meeting of the ESCB/SSM Diversity Network in Rome in October 2018.

In 2018 the ECB's comprehensive programme of activities included raising the rainbow flag on the International Day Against Homophobia, Transphobia and Biphobia (IDAHOT), running "inclusive leadership" workshops for ECB managers, celebrating the International Day for the Elimination of Racial Discrimination, and organising dedicated speaker events on LGBT+ and gender equality topics.

The ECB is continuing to work towards increasing the number of women in management positions. To achieve a greater gender balance, the ECB's Executive Board set targets for the end of 2019 and complemented them with a broad set of measures to ensure they are reached. These measures include a dedicated "women in leadership" training programme, extensive opportunities for flexible working

arrangements, a focus on inclusive leadership among managers, and diversity ambassadors working in each business area to improve the local gender balance.

At the end of 2018, 29% of management positions were held by women, compared with a target of 35% for the end of 2019. For senior management roles, the share was 22%, against a 2019 target of 28% (see Table 2). The overall share of female staff at the ECB at all levels is 44%.

Table 2

Gender targets and share of female staff at the ECB

	Share of female staff at the end of 2018	Gender target for the end of 2019
Senior managers	22%	28%
All managers	29%	35%

Source: ECB.
Notes: The overall gender share refers to staff holding both permanent and fixed-term positions. Data as at 1 January 2019.

The ECB is aiming to attract more female applicants

In view of the ongoing challenges, in 2018 the ECB's Executive Board adopted additional measures to improve gender diversity. It was decided that, in each business area, at least one member of the senior management team and at least one-third of the wider management team should be female. In addition, ECB recruitment procedures have been adjusted to attract more female applicants. This includes, for example, greater involvement of recruitment agencies tasked to search for potential female candidates. Furthermore, if any recruitment procedure does not attract a satisfactory number of female applicants, it can be stopped and relaunched. In addition, more women across the ECB will participate in recruitment panels in order to counter potential bias and to ensure more gender-balanced decision-making.

12.2 Strengthening integrity and governance standards

The ECB, with the support of its Ethics Committee and Audit Committee, strives for the highest level of integrity and governance standards.

The Single Code of Conduct introduces a comprehensive, state-of-the-art ethics framework

On the advice of the Audit Committee, the Governing Council asked the Ethics Committee to draw up a Single Code of Conduct for high-level ECB officials. The new Code introduces a comprehensive, state-of-the-art ethics framework for members of the Governing Council, Executive Board and Supervisory Board. Moreover, it expressly extends the Guiding principles for interactions with external parties to members of the Governing Council and Supervisory Board. Members of the General Council and other high-level ECB bodies, such as the Audit Committee, the Ethics Committee and the Administrative Board of Review, commit themselves to abide by the main general principles. The Single Code reflects the ECB's core principles and values, while appropriately taking into account the ECB's specificities as a central bank, banking supervisor and EU institution. It furthermore responds to suggestions made by ECB stakeholders with regard to integrity standards, accountability and transparency.

With regard to members of staff, following a recommendation by the ECB's external auditor, the annual compliance check of private financial transactions, which covers a

randomly selected group of staff members, was complemented by an ad hoc compliance check, which focuses either on a specific group of staff members or on specific types of transactions.

In the course of 2018 the ECB's Audit Committee assessed key aspects of corporate governance at the ECB, covering both the central banking and banking supervision arms, and in the Eurosystem. The Audit Committee focused in particular on the proper functioning of the Eurosystem's financial risk management framework, progress made towards coordinated action plans addressing cyber risks, and organisational initiatives to increase the effective operation of the SSM.

As part of its commitment to openness and transparency, the ECB decided to establish a Public Register of Documents. This register will be gradually enhanced and complemented to provide the general public and markets with user-friendly access to documents on the ECB's policies, activities and decisions in a structured and easily retrievable manner.

12.3 Cyber resilience

Information sharing is necessary for the proper functioning of the financial ecosystem, including central banks and the ECB itself. Hence, it is of primary importance to protect the integrity and confidentiality of data and ensure the availability of IT systems. The growing interconnectedness and complexity of the IT landscape and the increasing amount of data on digital platforms and across networks have been accompanied by increased exposure to cyberattacks and potential cyber incidents.[120] Cyberattacks on financial entities and their service providers are a serious concern, as they have a negative impact on consumers and businesses and could lead to systemic risks, affect financial stability and even impair economic growth.

The ECB has enhanced its own defence capabilities by developing governance frameworks and strengthening security controls via technology (including design, development and operation), processes, training and testing. Moreover, in collaboration with the financial ecosystem partners, the ECB promotes system-wide resilience. Cyber resilience is the ability to anticipate and adapt to cyber threats and other relevant changes in the environment and to withstand, contain and rapidly recover from a cyber incident.

Strengthening of the ECB's defences

The ECB has developed a governance framework for digital security and cyber resilience which describes the governance and organisational arrangements for the ECB's own digital security and cyber resilience, including a clarification of roles and responsibilities. Cyber risks are operational risks and therefore come under the umbrella of the overall operational risk management framework. The digital security and cyber resilience framework complements the frameworks governing the ECB's approach to non-financial risk management and increases the understanding and awareness of digital security, cyber risk and cyber resilience. The ECB's response and recovery capabilities in the event of a cyberattack on its own organisation will be

120 For a definition of "cyber incident" and other terms, see the Financial Stability Board's Cyber Lexicon.

further strengthened in 2019 by enhancing business continuity plans and testing the existing incident and crisis management arrangements.

Security involves collecting and analysing threat intelligence and implementing defensive measures, as well as augmenting detection and response capabilities. Incident reporting, collaboration and information sharing are vital for effective protection. Within the ECB, the new Cyber Security Steering Committee (CSSC) facilitates information exchange, policy alignment and working-level cooperation in order to foster the cyber resilience of the ECB and the European financial sector. The ECB promotes information sharing within the ESCB and facilitates the Operational Security Situational Awareness (OSSA) network for information exchange, which has 33 member institutions worldwide.

Owing to the continuous evolution of cyberattacks, there is a need to keep individuals continuously updated about new security threats and possible countermeasures. It is crucial for the ECB to establish high levels of awareness among members of staff about IT security in order to ensure that both users and information assets are protected. Staff members are given training to enhance their IT security skills and competence. Mandatory online training will be launched in 2019. Behavioural testing and testing of IT systems and processes are performed regularly.

Promoting system-wide resilience

The ECB focuses on cyber resilience from a regulatory perspective as part of its operational risk considerations for financial market infrastructures (FMIs), striving to ensure the implementation of relevant standards within the euro area and promoting harmonisation at international level. In line with this approach, the Eurosystem has established a cyber resilience strategy for FMIs with a series of measures addressing the resilience of individual FMIs, sector resilience and strategic regulator-industry engagement.

In order to ensure that the CPMI-IOSCO "Guidance on cyber resilience for financial market infrastructures" is followed consistently, the Eurosystem has developed "Cyber resilience oversight expectations for financial market infrastructures" (CROE). The CROE serve three key purposes:

- they provide FMIs with detailed steps on how to operationalise the guidance, ensuring that they are able to foster improvements and enhance their cyber resilience over a sustained period of time;
- they provide overseers with clear expectations to assess FMIs under their responsibility;
- they provide the basis for a meaningful discussion between the FMIs and their respective overseers.

In May 2018 the ECB launched the European framework for Threat Intelligence-based Ethical Red Teaming (TIBER-EU), which was developed by the Eurosystem as a tool to enable FMI operators to enhance their cyber resilience. TIBER-EU is the first common European framework facilitating a controlled, bespoke, intelligence-led red team test of critical live production systems, based on the tactics, techniques and procedures of real-life attackers. Its aims are to ensure standardisation and mutual

recognition of cyber testing across the EU and to avoid that FMIs have to undergo separate tests in each EU Member State.

As part of efforts to enhance the operational resilience of the financial sector, the Eurosystem, under its oversight mandate, arranges market-wide crisis communication exercises. In 2018 the Eurosystem organised the UNITAS table-top crisis communication exercise. The participants, including major euro area payment systems, central securities depositories, central counterparties, service providers, market infrastructures and central bank overseers, were presented with the scenario of a cyberattack on FMIs which compromised their data integrity. The exercise took the form of a facilitated discussion among market participants, allowing them to make observations and reach conclusions based on the scenario and to identify possible areas for collective work to further enhance the cyber resilience of the wider sector.

Recognising the need for a forum to bring together market actors, competent authorities and cybersecurity practitioners at a pan-European level, the Eurosystem set up the Euro Cyber Resilience Board for pan-European Financial Infrastructures (ECRB). The ECRB's objective is to enhance the cyber resilience of FMIs and their critical service providers, as well as of the wider EU financial sector, in line with international standards. This will be achieved by fostering trust and collaboration and facilitating joint initiatives – whether among market players or between market players and authorities.

Supervising banks' IT risks

The ECB includes cyber resilience and operational resilience in its supervision of banks' IT risks. Cyber risk deserves special consideration given banks' increased interconnectedness and greater dependence on IT and the speed at which vulnerabilities can be found and exploited by determined attackers.

In 2018 the ECB implemented the EBA Guidelines on ICT (Information and Communication Technologies) Risk Assessment under the SREP (EBA/GL/2017/05), leading to a consistent and comprehensive assessment of the IT risk situation in all supervised significant credit institutions in the euro area, which resulted in both specific follow-up activities at individual banks and thematic findings to be addressed on a broader scale. More generally, the ECB has emphasised that banks need to continue to be alert to all kinds of IT risk and should not limit their activities to only selected IT risk areas.

The ECB has contributed significantly to the EBA Guidelines on ICT and security risk management, which were published for consultation in December 2018. These are expected to harmonise IT risk management requirements for banks across Europe and foster a more level playing field. In addition, the supervision of IT risks at the ECB continues to include ongoing supervision by Joint Supervisory Teams, intrusive and targeted on-site inspections focused on specific IT risk objectives, and staying informed of cyberattacks through the ECB's cyber incident reporting framework.

Active collaboration across the globe, and in particular at European level, to reinforce the cyber resilience of the financial ecosystem continues.

12.4 Reducing the ECB's ecological footprint

The ECB strives to continuously improve its environmental performance

As a European institution, the ECB is conscious of its responsibility to contribute to environmental protection and address the challenges posed by climate change for the well-being of society and future generations. Since the adoption of its first environmental policy in 2007 the ECB has worked continuously on improving its environmental performance and reducing its carbon footprint. The ECB has been registered with the European Eco-Management and Audit Scheme (EMAS) since 2010 and its environmental management system covers all three buildings in which ECB staff are located in Frankfurt – the main building in Sonnemannstrasse, the Japan Center and the Eurotower.

Environmental protection is an integral part of the ECB's business strategy and shapes its daily operations and processes. With the support of over 50 internal environmental representatives and many committed teams and individuals across the organisation, the ECB strives for a continual reduction in its ecological footprint. The ECB is demonstrating its commitment by raising staff awareness, implementing efficiency measures and engaging with various stakeholders to work together on achieving the ECB's environmental objectives. One such measure was the launch of a versatile online collaboration tool that enables the ECB to interact with its counterparts remotely. This tool not only enriches online interactions, but also allows travel to be avoided whenever possible, thereby reducing emissions. In addition, the ECB has further optimised the lighting profile of its main building to reduce the lighting intensity in certain areas and has adjusted operating schedules to make further energy savings. Furthermore, disposable cups in the common areas have been replaced with reusable ones, considerably reducing waste.

2018 – a year full of environmental awareness-raising activities

2018 was an eventful year for the ECB in terms of environmental awareness-raising activities, as the ECB participated in several international campaigns. The ECB joined the Frankfurt community in its call to action to shine a light on climate change during the WWF's Earth Hour 2018. Together with 183 other businesses and institutions in Frankfurt, the ECB switched off all non-essential lights and staff were encouraged to join the campaign and identify further ways to be more environmentally friendly. Another initiative was the ECB's participation for the sixth time in the European Mobility Week. In order to encourage ECB staff to make greener choices for their daily commute to and from work, various activities such as bike safety checks, team competitions and mobility and climate quizzes were organised. In addition, staff were provided with information on environmentally friendly mobility at the ECB.

Support from external providers is also crucial to reducing the ECB's environmental impact. Sustainability criteria were taken into account, for instance, when selecting the ECB's cleaning contractor. These criteria led to the introduction of many environmentally friendly materials in daily operations, such as recycled paper in washrooms. The cleaning company providing services to the ECB uses innovative, non-hazardous, fully biodegradable cleaning products and mechanical deep-cleaning procedures only. The dosing process has also been optimised to reduce water consumption and improve water recycling when cleaning floors.

Collaboration for better environmental protection

In order to have more impact and to continue learning from each other, the ECB works closely with NCBs and with other European institutions and bodies. Together they can share best practices, discuss and explore new solutions to common challenges and communicate jointly about their environmental performance. On the common webpage EMAS in the European Institutions, the European institutions and bodies explore the practical benefits of being EMAS-registered and share best practices and resource savings. Thus, interinstitutional collaboration forms another crucial pillar of the ECB's commitment to environmental protection.

The ECB also publishes information on its environmental performance and the measures it has implemented on the webpage Environmental protection at the ECB.

Annual Accounts of the ECB

2018

Management report

1 Purpose of the ECB's management report

The management report is an integral part of the ECB's Annual Accounts and is designed to provide readers with contextual information related to the financial statements.[1] Given that the ECB's activities and operations are undertaken in support of its policy objectives, its financial position and result should be viewed in conjunction with its policy actions.

To this end, the management report presents the ECB's key activities and operations, as well as their impact on its financial statements. Furthermore, it analyses the main developments in the Balance Sheet and the Profit and Loss Account during the year and includes information on the ECB's financial resources. Finally, it describes the risk environment in which the ECB operates, providing information on the financial and operational risks to which the ECB is exposed, and the risk management policies used to mitigate risks.

2 Activities

The ECB is part of the Eurosystem, which has the primary objective of maintaining price stability. The ECB's main tasks, as described in the Statute of the ESCB,[2] comprise the implementation of the monetary policy of the euro area, the conduct of foreign exchange operations, the management of the official foreign reserves of the euro area countries and the promotion of the smooth operation of payment systems.

The ECB is also responsible for the effective and consistent functioning of the Single Supervisory Mechanism (SSM), with a view to carrying out intrusive and effective banking supervision, contributing to the safety and soundness of the banking system and the stability of the financial system.

The Eurosystem's monetary policy operations are recorded in the financial statements of the ECB and of the euro area national central banks (NCBs), reflecting the principle of decentralised implementation of monetary policy in the Eurosystem. Figure 1 below provides an overview of the main operations and functions of the ECB in pursuit of its mandate, and their impact on the ECB's financial statements.

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1 The "financial statements" comprise the Balance Sheet, the Profit and Loss Account and the related notes. The "Annual Accounts" comprise the financial statements, the management report, the auditor's report and the note on profit distribution/allocation of losses.

2 Protocol on the Statute of the European System of Central Banks and of the European Central Bank.

Figure 1

The ECB’s key activities and their impact on its financial statements

Implementation of monetary policy

Standard monetary policy operations in euro

Monetary policy operations conducted with the standard set of instruments (i.e. open market operations, standing facilities and minimum reserve requirements for credit institutions) are implemented in a decentralised manner by the NCBs of the Eurosystem. Accordingly, these operations are not reflected in the ECB's financial statements.

Liquidity-providing operations in foreign currency

The ECB acts as an intermediary between non-euro area central banks and the Eurosystem NCBs by means of swap transactions aimed at offering short-term foreign currency funding to Eurosystem counterparties.
These operations are recorded in the balance sheet items “Liabilities to non-euro area residents denominated in euro” and “Other claims within the Eurosystem” or “Other liabilities within the Eurosystem” and have no impact on the ECB’s Profit and Loss Account.

Securities held for monetary policy purposes

Purchases of these securities are conducted by the ECB and NCBs of the Eurosystem and are recorded under the balance sheet item “Securities held for monetary policy purposes”. The securities currently held are accounted for at amortised cost, subject to impairment.
Coupon accruals and amortised premiums and discounts are included in the Profit and Loss Account on a net basis under either “Other interest income” or “Other interest expense”, depending on whether the net amount is positive or negative.

Securities lending

Securities held for monetary policy purposes are available for lending by the Eurosystem.* For the ECB, these operations are conducted via a specialised institution.
These operations are recorded in the balance sheet items “Other liabilities to euro area credit institutions denominated in euro” and “Liabilities to non-euro area residents denominated in euro” if collateral is provided in the form of cash and this cash is still uninvested.
Otherwise, the related securities lending operations are recorded in off-balance sheet accounts.

* Further details on securities lending can be found on the ECB’s website.

Conduct of foreign exchange operations and management of the official foreign reserves of the euro area countries

Foreign exchange operations and management of foreign reserves

The ECB’s foreign reserves are presented on-balance sheet, mainly under “Gold and gold receivables”, “Claims on non-euro area residents denominated in foreign currency”, “Claims on euro area residents denominated in foreign currency”, “Liabilities to euro area residents denominated in foreign currency” and “Liabilities to non-euro area residents denominated in foreign currency”. Foreign exchange transactions are reflected in off-balance-sheet accounts until the settlement date.
Net interest income, including coupon accruals and amortised premiums and discounts, is included in the Profit and Loss Account under the item “Interest income on foreign reserve assets”.
Unrealised price and exchange rate losses exceeding previously recorded unrealised gains on the same items, as well as realised gains and losses arising from the sale of foreign reserves, are also included in the Profit and Loss Account under the items “Write-downs on financial assets and positions” and “Realised gains/losses arising from financial operations” respectively. Unrealised gains are recorded on-balance sheet under the item “Revaluation accounts”.

Promotion of the smooth operation of payment systems

Payment systems (TARGET2)

Intra-Eurosystem balances of euro area NCBs vis-à-vis the ECB arising from TARGET2* are presented together on the Balance Sheet of the ECB as a single net asset or liability position. The remuneration of these balances is included in the Profit and Loss Account under the items “Other interest income” and “Other interest expense”.

* Further details on TARGET2 can be found on the ECB’s website.

Contributing to the safety and soundness of the banking system and the stability of the financial system

Banking supervision – the Single Supervisory Mechanism

The annual expenses of the ECB in relation to its supervisory tasks are recovered via annual supervisory fees levied on the supervised entities. The supervisory fees are included in the Profit and Loss Account under the heading “Net income from fees and commissions”.

Furthermore, the ECB is entitled to impose administrative penalties on supervised entities for failure to comply with obligations under EU banking prudential regulation (including ECB supervisory decisions). The related income is recorded in the Profit and Loss Account under the heading “Net income from fees and commissions”.

Other

Banknotes in circulation

The ECB has been allocated a share of 8% of the total value of euro banknotes in circulation. This share is backed by claims on the NCBs, which bear interest at the rate on the main refinancing operations. This interest is included in the Profit and Loss Account under the item “Interest income arising from the allocation of euro banknotes within the Eurosystem”.

Expenses arising from the cross-border transportation of euro banknotes between banknote printing works and NCBs, for the delivery of new banknotes, and between NCBs, for the compensation of shortages with surplus stocks, are borne centrally by the ECB. These expenses are presented in the Profit and Loss Account under the heading “Banknote production services”.

Own funds portfolio

The own funds portfolio of the ECB is presented on-balance sheet, mainly under the item “Other financial assets”.

Net interest income, including coupon accruals and amortised premiums and discounts, is included in the Profit and Loss Account under “Other interest income” and “Other interest expense”.

Unrealised price losses exceeding previously recorded unrealised price gains on the same items, as well as realised gains and losses arising from the sale of securities, are also included in the Profit and Loss Account under the items “Write-downs on financial assets and positions” and “Realised gains/losses arising from financial operations” respectively. Unrealised price gains are recorded on-balance sheet under the item “Revaluation accounts”.

3 Financial developments[3]

3.1 Balance Sheet

The ECB’s Balance Sheet started expanding in the fourth quarter of 2014 due to the acquisition of securities under the third covered bond purchase programme (CBPP3) and the asset-backed securities purchase programme (ABSPP). This expansion has continued in subsequent years (see Chart 1), owing mainly to the acquisition of securities under the public sector purchase programme (PSPP).

€32.9 billion
Increase in total assets in 2018

In 2018 the **ECB’s total assets** increased by €32.9 billion to €447.1 billion, mainly owing to its share of purchases of securities under the asset purchase programme (APP)[4]. The increase was smaller than in 2017 owing to the reduced pace of monthly APP purchases in 2018. These purchases resulted in an increase in “Securities held for monetary policy purposes”, while the cash settlement of these purchases via TARGET2 accounts led to a corresponding increase in “Intra-Eurosystem liabilities”.

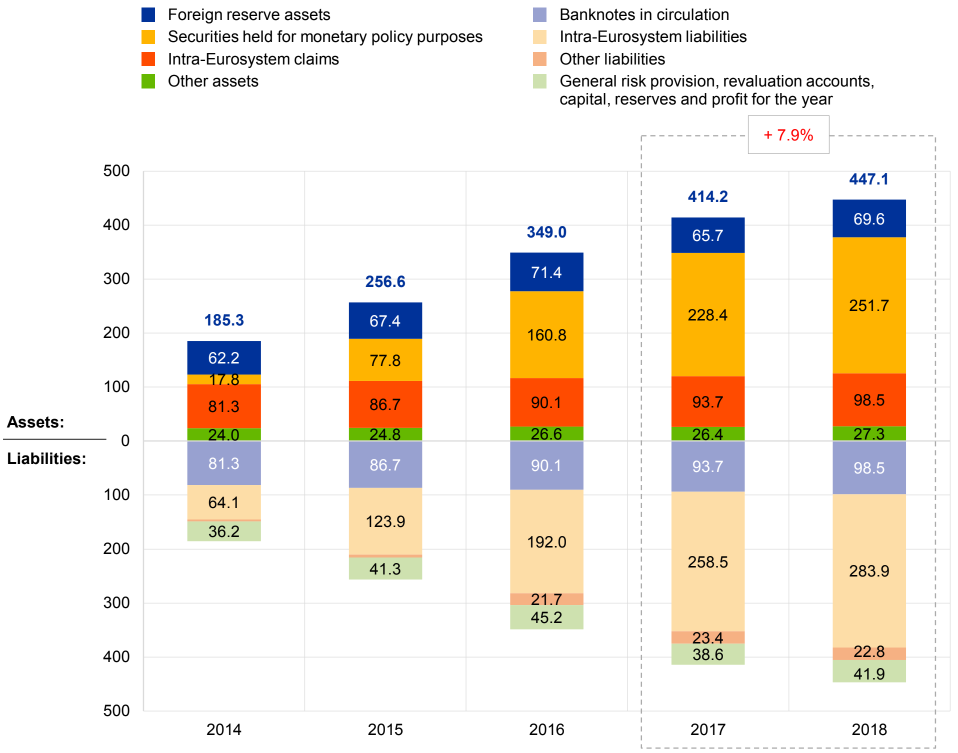
3 Throughout this document, the numbers presented may not add up precisely to the totals and percentages may not precisely reflect the absolute figures owing to rounding.

4 The APP consists of the CBPP3, the ABSPP, the PSPP and the corporate sector purchase programme (CSPP). Further details on the APP can be found on the ECB’s website.

Chart 1

Main components of the ECB's Balance Sheet

(EUR billions)



Source: ECB.

56%
of total assets are securities held for monetary policy purposes

Euro-denominated securities held for monetary policy purposes constituted 56% of the ECB's total assets as at the end of 2018. Under this balance sheet position, the ECB holds securities acquired in the context of the Securities Markets Programme (SMP), the three covered bond purchase programmes (CBPP1, CBPP2 and CBPP3), the ABSPP and the PSPP.[5] In 2018 purchases of securities under the CBPP3, ABSPP and PSPP[6] continued until the end of the year, when the net purchases ended. The purchases were conducted on the basis of the Governing Council's decisions on the overall monthly Eurosystem purchases and subject to predetermined eligibility criteria. The Eurosystem will continue reinvesting, in full, the principal payments from maturing securities purchased under the APP in line with the Governing Council decision of 13 December 2018.

€23.3 billion
Increase in securities held for monetary policy purposes

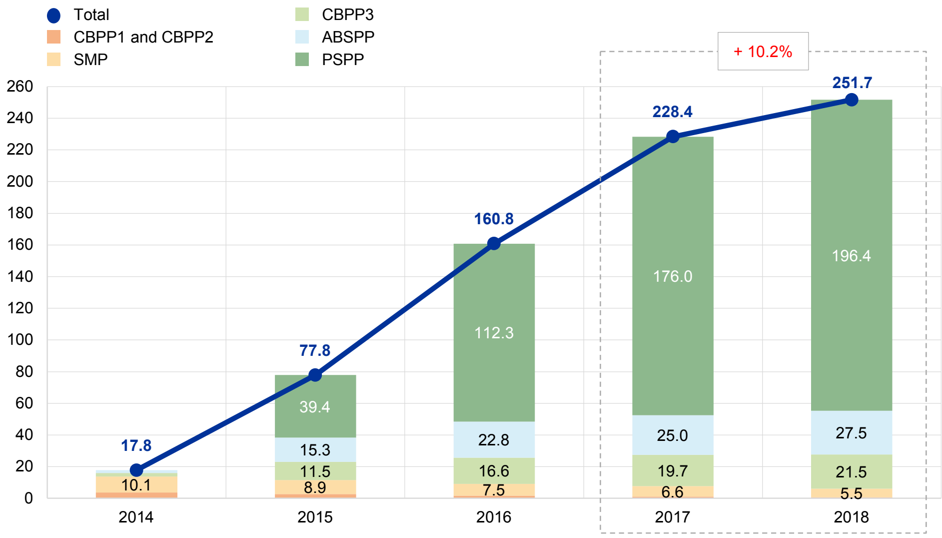
As a result of the purchases, in 2018 the portfolio of securities held for monetary policy purposes by the ECB increased by €23.3 billion to €251.7 billion (see Chart 2), with PSPP purchases accounting for the majority of this increase. The decrease in holdings under the CBPP1, CBPP2 and SMP was due to redemptions, which amounted to €1.5 billion.

5 The ECB does not acquire securities under the CSPP.

6 No purchases were conducted under the first two covered bond purchase programmes or the SMP in 2018, as purchases under these programmes ended in 2010 and 2012.

Chart 2
Securities held for monetary policy purposes

(EUR billions)



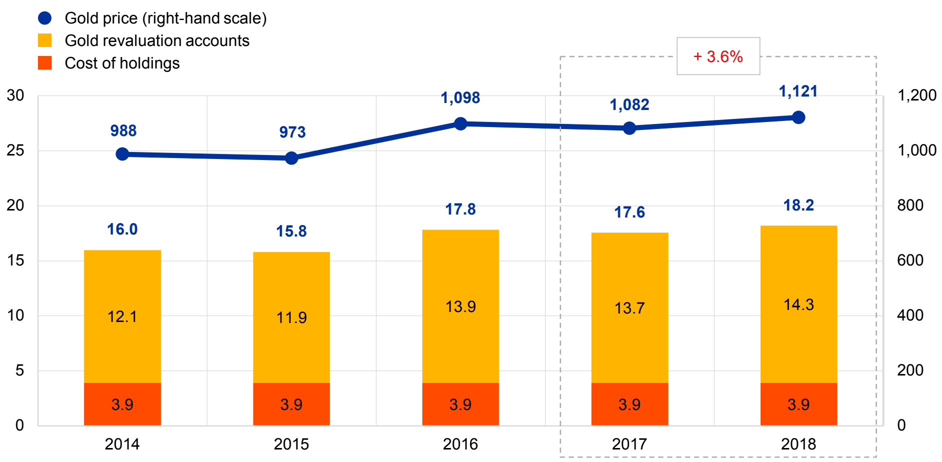
Source: ECB.

In 2018 the total euro equivalent value of the **ECB's foreign reserve assets**, which consist of gold, special drawing rights, US dollars, Japanese yen and Chinese renminbi, increased by €3.9 billion to €69.6 billion.

The euro equivalent value of the ECB's holdings of gold and gold receivables increased by €0.6 billion to €18.2 billion in 2018 (see Chart 3), owing to an increase in the market price of gold in euro terms, while the size of these holdings in fine ounces remained unchanged. This increase also led to a rise in the ECB's revaluation accounts, which increased by the same amount (see Section 3.2).

Chart 3
Gold holdings and gold prices

(left-hand scale: EUR billions; right-hand scale: euro per fine ounce of gold)



Source: ECB.

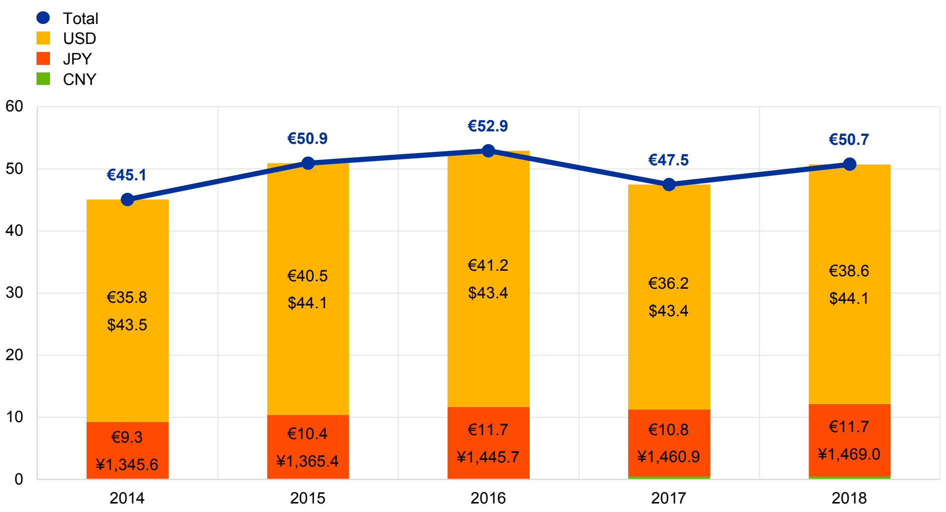
The value of the ECB's net foreign currency holdings increased owing to the depreciation of the euro

The ECB's net foreign currency holdings[7] of US dollars, Japanese yen and Chinese renminbi, increased in euro terms by €3.2 billion to €50.7 billion (see Chart 4), mainly owing to the depreciation of the euro against the US dollar and Japanese yen. This increase is also reflected in the higher balances in the ECB's revaluation accounts (see Section 3.2).

Chart 4

Foreign currency holdings

(EUR billions)



Source: ECB.

The US dollar continued to be the main component of the ECB's foreign currency holdings, accounting for approximately 76% of the total at the end of 2018.

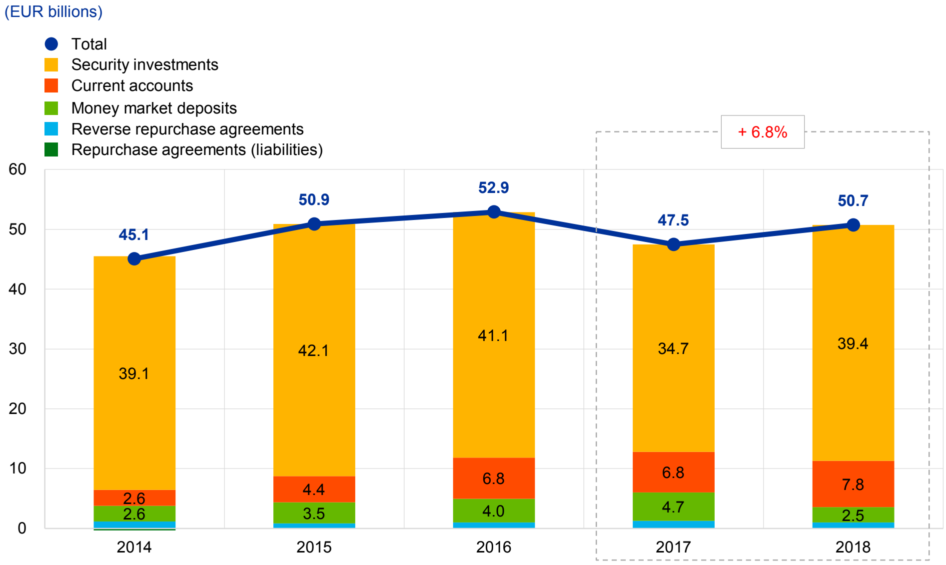
The ECB manages the investment of its foreign currency reserves using a three-step process. First, a strategic benchmark portfolio is designed by the ECB's risk managers and approved by the Governing Council. Second, the ECB's portfolio managers design the tactical benchmark portfolio, which is approved by the Executive Board. Third, day-to-day investment operations are conducted in a decentralised manner by the NCBs.

The ECB's foreign currency reserves are mainly invested in securities and money market deposits or are held in current accounts (see Chart 5). Securities in this portfolio are valued at year-end market prices.

7 These holdings comprise assets included under balance sheet positions "Claims on non-euro area residents denominated in foreign currency – Balances with banks and security investments, external loans and other external assets" and "Claims on euro area residents denominated in foreign currency".

Chart 5

Composition of foreign currency investments



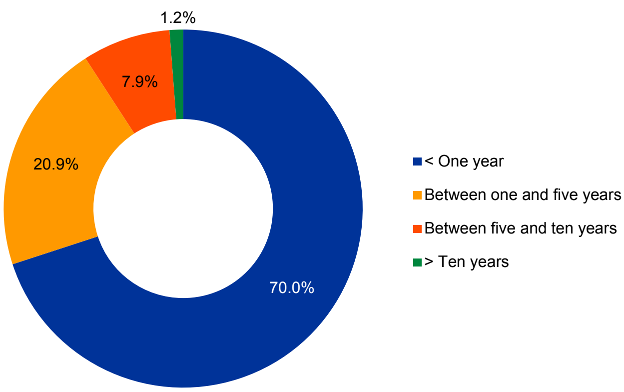
Source: ECB.

70%
Foreign currency-denominated securities with a maturity of less than one year

The purpose of the ECB's foreign currency reserves is to finance potential interventions in the foreign exchange market. For this reason, the ECB's foreign currency reserves are managed in accordance with three objectives: (in order of priority) liquidity, safety and return. Therefore, this portfolio mainly comprises securities with short maturities (see Chart 6).

Chart 6

Maturity profile of foreign currency-denominated securities

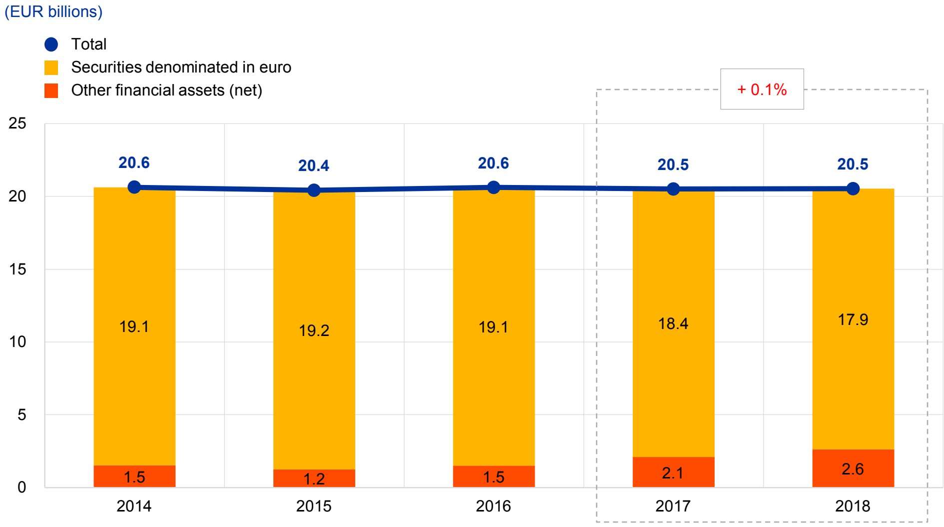


Source: ECB.

In 2018 the **own funds portfolio** remained virtually unchanged (see Chart 7). This portfolio mainly consists of euro-denominated securities which are valued at year-end market prices.

Chart 7

The ECB's own funds portfolio

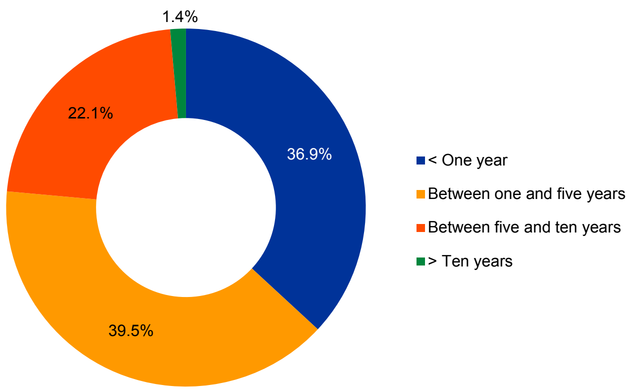


Source: ECB.

The ECB's own funds portfolio is held as a direct counterpart to its paid-up capital, the provision for foreign exchange rate, interest rate, credit and gold price risks, and its general reserve fund. The purpose of this portfolio is to provide income to help fund the ECB's operating expenses which are not related to the performance of its supervisory tasks.[8] In this context, the objective of the management of the own funds portfolio is to maximise returns, subject to a number of risk limits. This results in a more diversified maturity structure (see Chart 8) than in the foreign currency reserves portfolio.

Chart 8

Maturity profile of the ECB's own funds securities



Source: ECB.

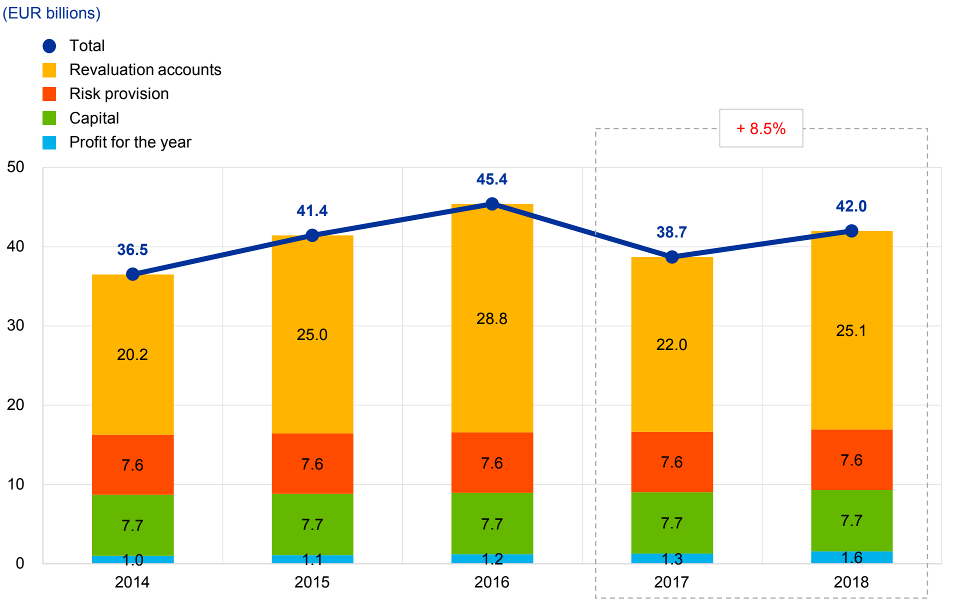
8 The expenses incurred by the ECB in the performance of its supervisory tasks are recovered via annual fees levied on supervised entities.

3.2 Financial resources

€42.0 billion
The ECB's financial resources

The ECB's financial resources consist of its capital, the general risk provision, the revaluation accounts and the profit for the year. These financial resources are (i) invested in assets that generate income, and/or (ii) used to directly offset losses materialising from financial risks. As at 31 December 2018, the **ECB's financial resources** totalled €42.0 billion (see Chart 9). This amount was €3.3 billion higher than in 2017, mainly owing to an increase in the revaluation accounts following the depreciation of the euro.

Chart 9
The ECB's financial resources



Source: ECB.
Note: "Revaluation accounts" includes total revaluation gains on the gold, foreign currency and securities holdings, but excludes the revaluation account for post-employment benefits.

5%
Depreciation of the euro against the US dollar in 2018

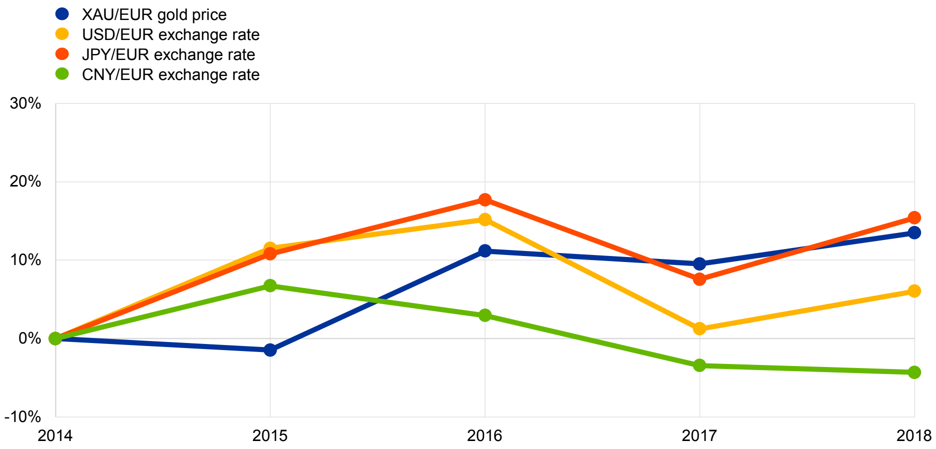
Unrealised gains on gold, foreign currencies and securities that are subject to price revaluation are not recognised as income in the Profit and Loss Account but are recorded directly in **revaluation accounts** shown on the liability side of the ECB's Balance Sheet. The balances in these accounts can be used to absorb the impact of any future unfavourable movement in the respective prices and/or exchange rates, and thus strengthen the ECB's resilience to the underlying risks. In 2018 the revaluation accounts for gold, foreign currencies and securities[9] increased by €3.0 billion to €25.1 billion, mainly owing to the depreciation of the euro against the US dollar, Japanese yen and gold (see Chart 10).

9 The balance sheet item "Revaluation accounts" also includes remeasurements in respect of post-employment benefits.

Chart 10

The main foreign exchange rates and gold price over the period 2014-18

(percentage changes vis-à-vis 2014; year-end data)



Source: ECB.

The profit resulting from the ECB's assets and liabilities in a given financial year can be used to absorb potential losses incurred in the same year. In 2018 the **ECB's profit** was €1.6 billion, €0.3 billion higher than in 2017.

The general risk provision stands at its maximum permitted level

In view of its exposure to financial risks (see Section 4.1), the ECB maintains a **provision for foreign exchange rate (currency), interest rate, credit and gold price (commodity) risks.** The size of this provision is reviewed annually, taking a range of factors into account, including the level of holdings of risk-bearing assets, the projected results for the coming year and a risk assessment. The risk provision, together with any amount held in the ECB's general reserve fund, may not exceed the value of the capital paid up by the euro area NCBs. Since 2015 this provision has stood at its maximum permitted level of €7.6 billion.

The **ECB's capital** paid up by euro area and non-euro area NCBs remained unchanged compared with its level at the end of 2017 and stood at €7.7 billion on 31 December 2018. In 2019 the shares of the NCBs in the capital of the ECB are going to change, first, due to the regular five-yearly adjustment of the ECB's capital key and, second, due to the expected[10] departure of the United Kingdom from the European Union in 2019 and consequent withdrawal of the Bank of England from the European System of Central Banks (ESCB).

3.3 Profit and Loss Account

Over the period 2014-18 the profit of the ECB has gradually increased from around €1.0 billion to around €1.6 billion (see Chart 11), mainly due to higher interest income generated on foreign reserve assets and on securities held for monetary policy

[10] Based on the expectation prevailing on the date on which the Executive Board authorised the submission of the ECB's Annual Accounts 2018 to the Governing Council for approval.

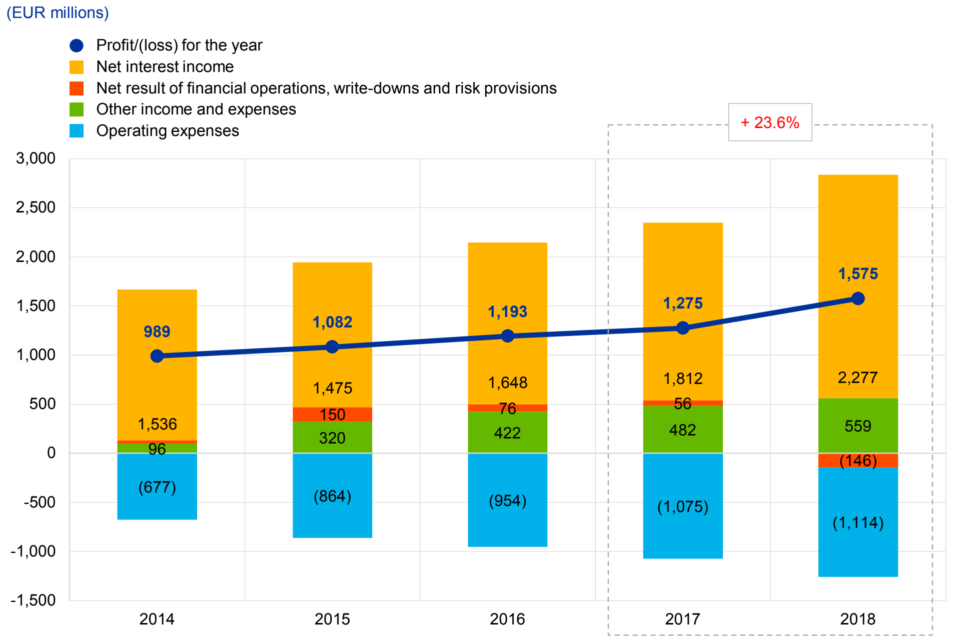
purposes, which more than offset a decline in interest income on banknotes in circulation[11] and on the own funds portfolio.

€1,575 million
The ECB's profit in 2018

In 2018, the **ECB's profit** was €1,575 million (2017: €1,275 million). The increase of €301 million compared with 2017 was mainly due to the increase in net interest income.

Chart 11

Main components of the ECB's Profit and Loss Account



Source: ECB.
Note: "Other income and expenses" consists of "Net income/expense from fees and commissions", "Income from equity shares and participating interests", "Other income" and "Other expenses".

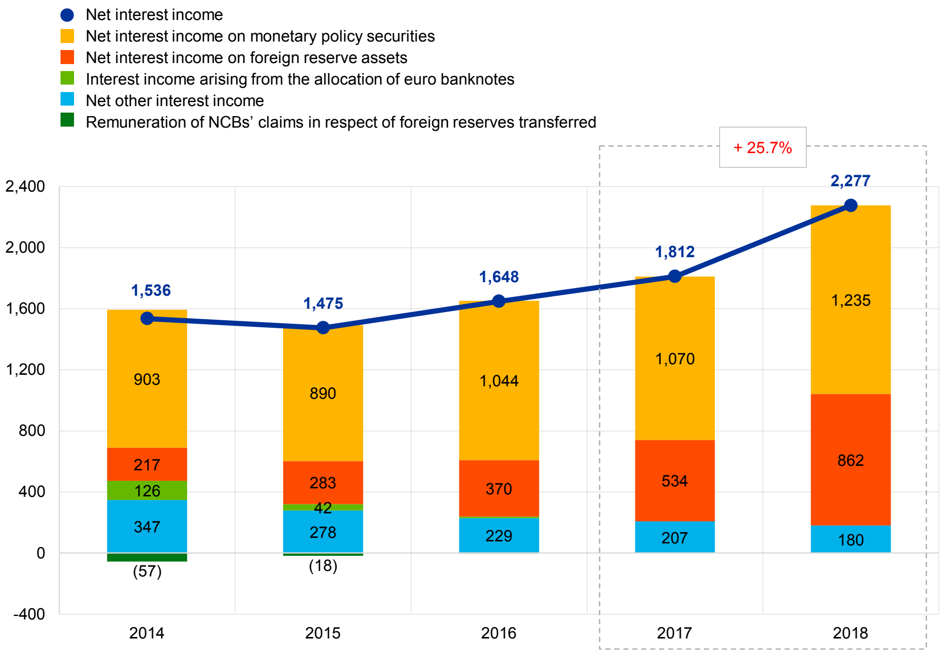
Increase in foreign reserve income and monetary policy income

The **net interest income** of the ECB increased by €465 million to €2,277 million (see Chart 12), mainly owing to higher interest income earned on the foreign reserve assets and on securities held for monetary policy purposes.

[11] The ECB's income on euro banknotes in circulation comprises the interest income accruing to the ECB on the remuneration of its intra-Eurosystem claims on NCBs related to its 8% share of total euro banknotes in circulation.

Chart 12
Net interest income

(EUR millions)



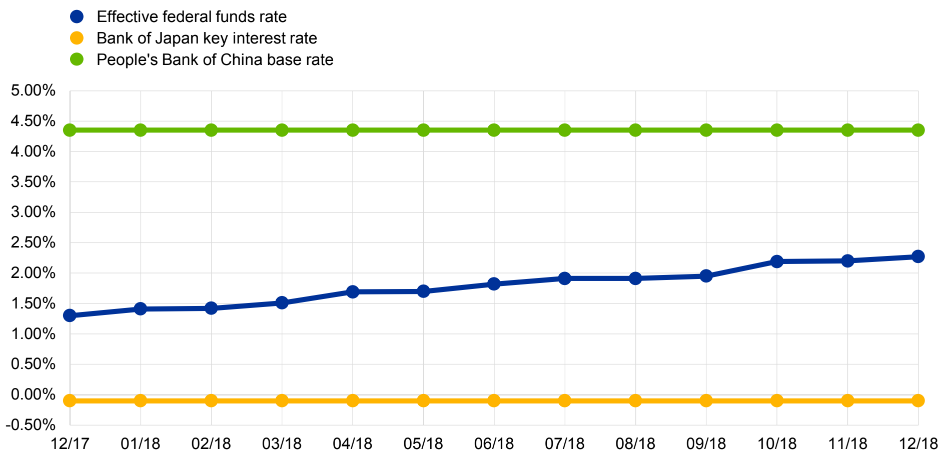
Source: ECB.

Increase in interest income on foreign reserve assets, mainly owing to increased US dollar yields

Net interest income on foreign reserve assets increased by €327 million to €862 million, mainly as a result of the higher interest income earned on securities denominated in US dollars owing to the higher yields on such securities, in particular for short maturities (see Chart 13).

Chart 13
Key benchmark rates

(percentages per annum; month-end data)



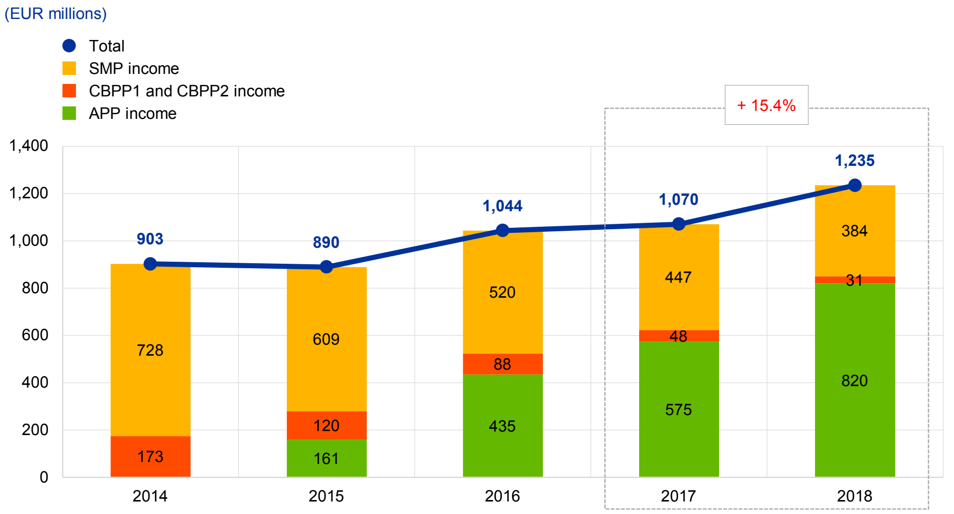
Sources: Federal Reserve System, Bank of Japan and People's Bank of China.

Higher APP income more than offset the reduction in income from ceased programmes

Net interest income generated on securities held for monetary policy purposes in 2018 was €1,235 million, which was €164 million higher than in 2017 (see Chart 14). Net interest income arising from APP securities increased by €245 million to €820 million. This was a result of the increased size of the holdings (see Chart 2) and the higher yield on securities acquired during the year compared to the historical yield of the portfolio. At the same time yields on euro area sovereign bond remained low on average in 2018 (see Chart 15). The increased net interest income from APP securities more than offset the reduction in net interest income on the SMP, CBPP1 and CBPP2 portfolios, which fell by €81 million to €415 million, owing to the decline in the size of these portfolios as a result of the maturing of securities. In 2018 securities held for monetary policy purposes generated around 54% of the ECB's net interest income.

Chart 14

Net interest income on securities held for monetary policy purposes

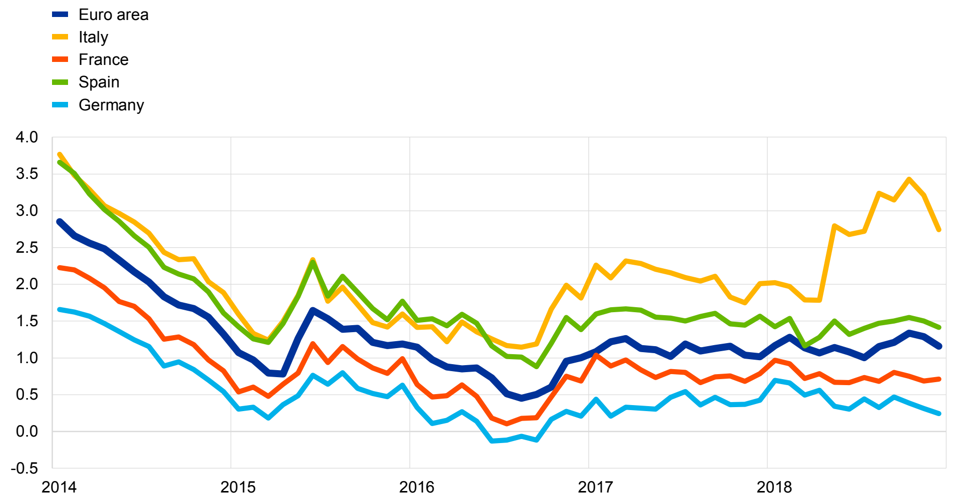


Source: ECB.

Chart 15

Ten-year sovereign bond yields

(percentages per annum; month-end data)



Source: ECB.

0.0%
MRO rate in 2018

Both the **interest income on the ECB's share of total euro banknotes in circulation** and the **interest expense related to the remuneration of NCBs' claims in respect of foreign reserves transferred** were zero as a result of the 0% interest rate used by the Eurosystem in its main refinancing operations (MROs).

The **net other interest income** decreased, mainly owing to the lower interest income earned on the own funds portfolio as a result of the low-yield environment in the euro area.

Net result of financial operations and write-downs was driven mainly by the change in US dollar bond yields

The **net result of financial operations and write-downs** on financial assets amounted to a loss of €146 million (see Chart 16). This result was €202 million lower than in 2017, mainly owing to lower realised price and exchange rate results.

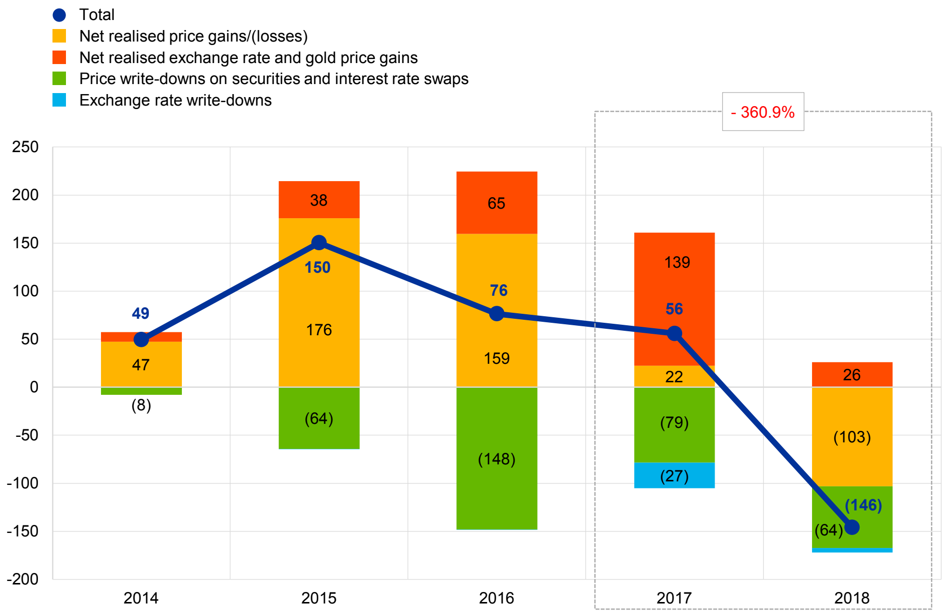
In 2018 there was a net realised price loss on securities holdings, mainly owing to price losses on US dollar-denominated securities, as their market value was negatively affected by the increase in US dollar bond yields.

The decrease in net realised exchange rate and gold price gains was due to the one-off sale of US dollars that took place in 2017 to fund the creation of the Chinese renminbi portfolio and resulted in higher than usual realised currency gains in that year.

Chart 16

Realised results and write-downs

(EUR millions)



Source: ECB.

€518 million
Fees levied by the ECB for conducting supervisory tasks

The **total operating expenses** of the ECB, including depreciation and banknote production services, increased by €40 million to €1,114 million (see Chart 17). The increase compared to 2017 is related to administrative expenses, in particular (i) external consultancy support required for comprehensive assessments and contribution to the EBA stress testing exercise, and (ii) information technology. This increase is mainly attributable to banking supervision, as shown in the chart below. Banking supervision-related expenses are fully covered by fees levied on the supervised entities.[12] The higher administrative expenses were partially offset by a decrease in staff costs, mainly due to lower expenses in relation to post-employment, other-long term and termination benefits, which in 2017 had included a non-recurring charge relating to the introduction of the temporary Career Transition Support (CTS) scheme.[13]

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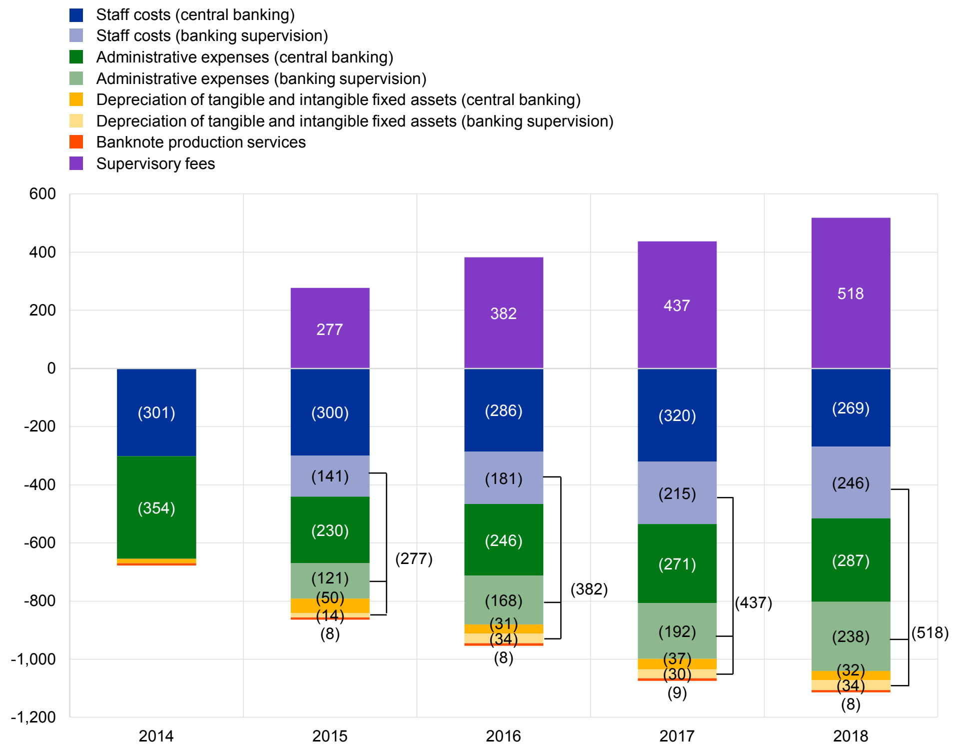
12 Supervisory fees are included under “Other income and expenses” (see Chart 11).

13 This temporary scheme was introduced to support staff members commencing alternative careers outside the ECB.

Chart 17

Operating expenses and supervisory fees

(EUR millions)

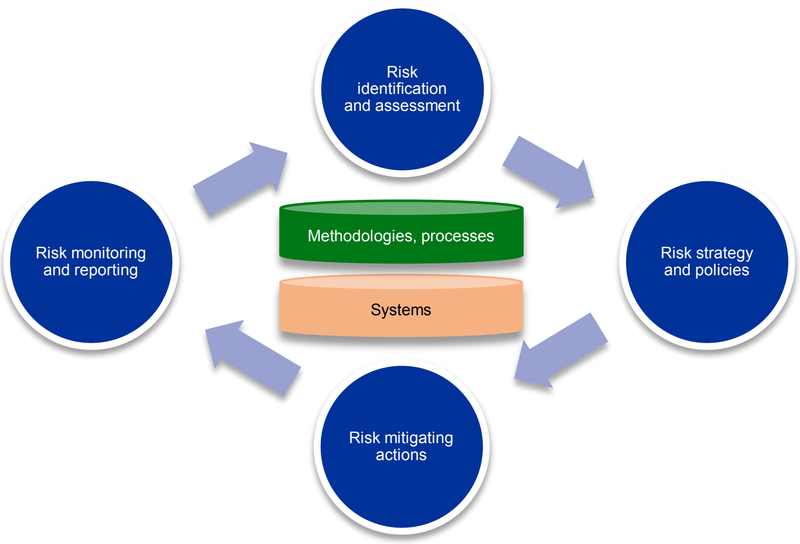


Source: ECB.
Note: Operating expenses are split between central banking and banking supervision. The costs of shared services provided by the ECB's support business areas have been allocated among these two categories. These shared services are provided by the existing support business areas of the ECB, including premises, human resources management, administrative services, budgeting and controlling, accounting, legal, communication and translation services, internal audit, statistical and information technology services.

4 Risk management

Risk management is a critical part of the ECB's activities and is conducted through a continuous process of (i) risk identification and assessment, (ii) review of the risk strategy and policies, (iii) implementation of risk mitigating actions, and (iv) risk monitoring and reporting, all of which are supported by effective methodologies, processes and systems.

Figure 2
Risk management cycle



The ECB is exposed to both financial and operational risks. The following sections focus on these risks, their sources and the applicable risk control frameworks.

4.1 Financial risks

The Executive Board proposes policies and procedures that ensure an appropriate level of protection against risks

The Executive Board proposes policies and procedures that ensure an appropriate level of protection against the financial risks to which the ECB is exposed. The Risk Management Committee (RMC), which comprises experts from Eurosystem central banks, contributes, inter alia, to the monitoring and measuring of and reporting on financial risks related to the balance sheet of the Eurosystem, and it defines and reviews the associated methodologies and frameworks. In this way, the RMC helps the decision-making bodies to ensure an appropriate level of protection for the Eurosystem.

Financial risks arise from the ECB's core activities and exposures

Financial risks arise from the ECB's core activities and associated exposures. The risk control frameworks and limits that the ECB uses to manage its risk profile differ across types of operation, reflecting the policy or investment objectives of the different portfolios and the risk characteristics of the underlying assets.

The ECB relies on a number of risk estimation techniques developed in-house

To monitor and assess the risks, the ECB relies on a number of risk estimation techniques developed in-house. These techniques are based on a joint market and credit risk simulation framework. The core modelling concepts, techniques and assumptions underlying the risk measures draw on industry standards and available market data. The risks are typically quantified by the expected shortfall (ES),[14] estimated at the 99% confidence level over a one-year horizon. Two approaches are

[14] The ES is defined as a probability-weighted average loss that occurs in the worst (1-p)% of scenarios, where p denotes the confidence level.

used to calculate risks: (i) the accounting approach, under which the ECB's revaluation accounts are considered as a buffer in the calculation of risk estimates in line with all applicable accounting rules; and (ii) the financial approach, under which the revaluation accounts are not considered as a buffer in the risk calculation. The ECB also calculates other risk measures at different confidence levels, performs sensitivity and stress scenario analyses, and assesses longer-term projections of exposures and income to maintain a comprehensive picture of the risks.[15]

€9.2 billion
Total risk in 2018 (ES 99% accounting approach)

The total risks of the ECB decreased during the year. As at 31 December 2018 the total financial risks for all the ECB's portfolios combined, as measured by the ES at the 99% confidence level over a one-year horizon following the accounting approach, stood at €9.2 billion, which was €1.4 billion lower than the risks estimated as at 31 December 2017. The decrease reflects improvements in the credit quality of securities held in the ECB's portfolios.

Credit risk

Credit risk arises from the ECB's monetary policy portfolios, its euro-denominated own funds portfolio and its foreign reserve holdings. While securities held for monetary policy purposes are valued at amortised cost subject to impairment and are therefore, in the absence of sales, not subject to price changes associated with credit migrations, they are still subject to credit default risk. Euro-denominated own funds and foreign reserves are valued at market prices and, as such, are subject to credit migration and default risk. Credit risk has decreased since last year owing to improvements in the credit quality of several European sovereigns.

Credit risk is mitigated mainly through the application of eligibility criteria, due diligence procedures and limits that differ across portfolios.

Currency and commodity risks

Currency and commodity risks arise from the ECB's foreign currency and gold holdings. The currency and commodity risks remained broadly stable compared to last year.

In view of the policy role of these assets, the ECB does not hedge the related currency and commodity risks. Instead, these risks are mitigated through the existence of revaluation accounts and the diversification of the holdings across different currencies and gold.

Interest rate risk

The ECB's foreign reserves and euro-denominated own funds are mainly invested in fixed income securities and are subject to mark-to-market interest rate risk, given that they are valued at market prices. The ECB's foreign reserves holdings are mainly invested in assets with relatively short maturities (see Chart 6 in Section 3.1), while the assets in the own funds portfolio generally have longer maturities (see Chart 8 in Section 3.1). This risk component, as measured under the accounting approach, remained unchanged compared with 2017.

The mark-to-market interest rate risk of the ECB is mitigated through asset allocation policies and the revaluation accounts.

[15] Further details on the risk modelling approach can be found in "The financial risk management of the Eurosystem's monetary policy operations", ECB, July 2015.

The ECB is also subject to interest rate risk arising from mismatches between the interest rate earned on its assets and the interest rate paid on its liabilities, which has an impact on its net interest income. This risk is not directly linked to any particular portfolio but rather to the structure of the ECB's Balance Sheet as a whole and, in particular, the existence of maturity and yield mismatches between assets and liabilities. It is monitored by means of a forward-looking analysis of the ECB's profitability, which indicates that the ECB is expected to continue to earn net interest income in the coming years, despite the increasing share of monetary policy assets with low yields and long maturities on its Balance Sheet.

This type of risk is managed through asset allocation policies and is further mitigated by the existence of unremunerated liabilities on the ECB's Balance Sheet.

4.2 Operational risk

The ECB's operational risk[16] management (ORM) covers all **non-financial risks**.

Operational risk management is an integral part of the governance and management processes

The Executive Board is responsible for and approves the ECB's ORM policy and framework. The Operational Risk Committee (ORC) supports the Executive Board in the performance of its role in overseeing the management of operational risks. **ORM is an integral part of the ECB's governance structure[17] and management processes.**

The main objective of the ECB's ORM framework is to **contribute to ensuring that the ECB achieves its mission and objectives, while protecting its reputation and assets against loss, misuse and damage.** Under the ORM framework, each business area is responsible for identifying, assessing, responding to, reporting on and monitoring its operational risks, incidents and controls. In this context, the ECB's risk tolerance policy provides guidance with regard to risk response strategies and risk acceptance procedures. It is linked to a five-by-five risk matrix based on impact and likelihood grading scales applying quantitative and qualitative criteria.

The environment in which the ECB operates is exposed to increasingly complex threats and there are a wide range of operational risks associated with the ECB's day-to-day activities. The main areas of concern for the ECB include a wide spectrum of non-financial risks resulting from people, information, systems, processes and external third party providers. Consequently, the ECB has put in place processes to facilitate ongoing and effective management of its operational risks and to integrate risk information into the decision-making process. Moreover, the ECB focuses on enhancing its resilience. As such, response structures and contingency plans have been established to ensure the continuity of critical business functions in the event of any disruption.

16 Operational risk is defined as the risk of a negative financial, business or reputational impact resulting from people, the inadequate implementation or failure of internal governance and business processes, the failure of systems on which processes rely, or external events (e.g. natural disasters or external attacks).

17 Further information about the ECB's governance structure can be found on the ECB's website.

Financial statements of the ECB[18]

Balance Sheet as at 31 December 2018

ASSETS	Note number	2018 € millions	2017 € millions
Gold and gold receivables	1	**18,193**	**17,558**
Claims on non-euro area residents denominated in foreign currency	2		
Receivables from the IMF	2.1	692	670
Balances with banks and security investments, external loans and other external assets	2.2	49,723	43,761
		50,415	**44,431**
Claims on euro area residents denominated in foreign currency	2.2	**997**	**3,712**
Other claims on euro area credit institutions denominated in euro	3	**300**	**143**
Securities of euro area residents denominated in euro	4		
Securities held for monetary policy purposes	4.1	**251,656**	**228,386**
Intra-Eurosystem claims	5		
Claims related to the allocation of euro banknotes within the Eurosystem	5.1	**98,490**	**93,657**
Other assets	6		
Tangible and intangible fixed assets	6.1	1,148	1,196
Other financial assets	6.2	20,529	20,503
Off-balance-sheet instruments revaluation differences	6.3	579	451
Accruals and prepaid expenses	6.4	2,738	2,597
Sundry	6.5	2,039	1,528
		27,033	**26,275**
Total assets		**447,083**	**414,162**

[18] Totals in the financial statements and in the tables included in the notes may not add up due to rounding. The figures 0 and (0) indicate positive or negative amounts rounded to zero, while a dash (-) indicates zero.

LIABILITIES	Note number	2018 € millions	2017 € millions
Banknotes in circulation	7	**98,490**	**93,657**
Other liabilities to euro area credit institutions denominated in euro	8	**1,399**	**1,061**
Liabilities to other euro area residents denominated in euro	9		
Other liabilities	9.1	**9,152**	**1,150**
Liabilities to non-euro area residents denominated in euro	10	**10,361**	**19,549**
Intra-Eurosystem liabilities	11		
Liabilities equivalent to the transfer of foreign reserves	11.1	40,793	40,793
Other liabilities within the Eurosystem (net)	11.2	243,115	217,752
		283,907	**258,544**
Other liabilities	12		
Off-balance-sheet instruments revaluation differences	12.1	641	431
Accruals and income collected in advance	12.2	54	76
Sundry	12.3	1,178	1,063
		1,873	**1,571**
Provisions	13	**7,663**	**7,670**
Revaluation accounts	14	**24,922**	**21,945**
Capital and reserves	15		
Capital	15.1	**7,740**	**7,740**
Profit for the year		**1,575**	**1,275**
Total liabilities		**447,083**	**414,162**

Profit and Loss Account for the year ending 31 December 2018

	Note number	2018 € millions	2017 € millions
Interest income on foreign reserve assets	22.1	862	534
Interest income arising from the allocation of euro banknotes within the Eurosystem	22.2	-	-
Other interest income	22.4	1,642	1,527
Interest income		*2,503*	*2,061*
Remuneration of NCBs' claims in respect of foreign reserves transferred	22.3	-	-
Other interest expense	22.4	(226)	(250)
Interest expense		*(226)*	*(250)*
Net interest income	22	**2,277**	**1,812**
Realised gains/losses arising from financial operations	23	(77)	161
Write-downs on financial assets and positions	24	(69)	(105)
Transfer to/from provisions for foreign exchange rate, interest rate, credit and gold price risks		-	-
Net result of financial operations, write-downs and risk provisions		**(146)**	**56**
Net income/expense from fees and commissions	25	**511**	**440**
Income from equity shares and participating interests	26	**1**	**1**
Other income	27	**47**	**52**
Total net income		**2,690**	**2,361**
Staff costs	28	(515)	(535)
Administrative expenses	29	(525)	(463)
Depreciation of tangible and intangible fixed assets		(66)	(67)
Banknote production services	30	(8)	(9)
Other expenses	31	-	(11)
Profit for the year		**1,575**	**1,275**

Frankfurt am Main, 12 February 2019

European Central Bank

Mario Draghi
President

Accounting policies[19]

Form and presentation of the financial statements

The financial statements of the ECB have been drawn up in accordance with the following accounting policies,[20] which the Governing Council of the ECB considers to achieve a fair presentation of the financial statements, reflecting at the same time the nature of central bank activities.

Accounting principles

The following accounting principles have been applied: economic reality and transparency, prudence, recognition of post-balance-sheet events, materiality, going concern, the accruals principle, consistency and comparability.

Recognition of assets and liabilities

An asset or liability is only recognised in the Balance Sheet when it is probable that any associated future economic benefit will flow to or from the ECB, substantially all of the associated risks and rewards have been transferred to the ECB, and the cost or value of the asset or the amount of the obligation can be measured reliably.

Basis of accounting

The accounts have been prepared on a historical cost basis, modified to include the market valuation of marketable securities (other than securities held for monetary policy purposes), gold and all other on-balance-sheet and off-balance-sheet assets and liabilities denominated in foreign currency.

Transactions in financial assets and liabilities are reflected in the accounts on the basis of the date on which they were settled.

With the exception of spot transactions in securities, transactions in financial instruments denominated in foreign currency are recorded in off-balance-sheet accounts on the trade date. At the settlement date the off-balance-sheet entries are

19 The detailed accounting policies of the ECB are laid down in Decision (EU) 2016/2247 of the ECB of 3 November 2016 on the annual accounts of the ECB (ECB/2016/35) (OJ L 347, 20.12.2016, p. 1), as amended. In order to ensure the harmonised accounting and financial reporting of Eurosystem operations, the Decision is based on Guideline (EU) 2016/2249 of the ECB of 3 November 2016 on the legal framework for accounting and financial reporting in the European System of Central Banks (ECB/2016/34) (OJ L 347, 20.12.2016, p. 37).

20 These policies, which are reviewed and updated regularly as deemed appropriate, are consistent with the provisions of Article 26.4 of the Statute of the ESCB, which require a harmonised approach to the rules governing the accounting and financial reporting of Eurosystem operations.

reversed and transactions are booked on-balance-sheet. Purchases and sales of foreign currency affect the net foreign currency position on the trade date, and realised results arising from sales are also calculated on that date. Accrued interest, premiums and discounts related to financial instruments denominated in foreign currency are calculated and recorded daily, and the foreign currency position is also affected daily by these accruals.

Gold and foreign currency assets and liabilities

Assets and liabilities denominated in foreign currency are converted into euro at the exchange rate prevailing on the balance sheet date. Income and expenses are converted at the exchange rate prevailing on the recording date. The revaluation of foreign exchange assets and liabilities, including on-balance-sheet and off-balance-sheet instruments, is performed on a currency-by-currency basis.

Revaluation to the market price for assets and liabilities denominated in foreign currency is treated separately from the exchange rate revaluation.

Gold is valued at the market price prevailing at the balance sheet date. No distinction is made between the price and currency revaluation differences for gold. Instead, a single gold valuation is accounted for on the basis of the price in euro per fine ounce of gold, which, for the year ending 31 December 2018, was derived from the exchange rate of the euro against the US dollar on 31 December 2018.

The special drawing right (SDR) is defined in terms of a basket of currencies and its value is determined by the weighted sum of the exchange rates of five major currencies (the US dollar, euro, Chinese renminbi, Japanese yen and pound sterling). The ECB's holdings of SDRs were converted into euro using the exchange rate of euro per SDR as at 31 December 2018.

Securities

Securities held for monetary policy purposes

Securities currently held for monetary policy purposes are accounted for at amortised cost subject to impairment.

Other securities

Marketable securities (other than securities held for monetary policy purposes) and similar assets are valued either at the mid-market prices or on the basis of the relevant yield curve prevailing on the balance sheet date, on a security-by-security basis. Options embedded in securities are not separated for valuation purposes. For the year ending 31 December 2018, mid-market prices on 28 December 2018 were

used. Illiquid equity shares and any other equity instruments held as permanent investments are valued at cost subject to impairment.

Income recognition

Income and expenses are recognised in the period in which they are earned or incurred.[21] Realised gains and losses arising from the sale of foreign currency, gold and securities are taken to the Profit and Loss Account. Such realised gains and losses are calculated by reference to the average cost of the respective asset.

Unrealised gains are not recognised as income and are transferred directly to a revaluation account.

Unrealised losses are taken to the Profit and Loss Account if, at the year-end, they exceed previous revaluation gains registered in the corresponding revaluation account. Such unrealised losses on any one security or currency or on gold are not netted against unrealised gains on other securities or currencies or gold. In the event of such unrealised losses on any item taken to the Profit and Loss Account, the average cost of that item is reduced to the year-end exchange rate or market price. Unrealised losses on interest rate swaps that are taken to the Profit and Loss Account at the year-end are amortised in subsequent years.

Impairment losses are taken to the Profit and Loss Account and are not reversed in subsequent years unless the impairment decreases and the decrease can be related to an observable event that occurred after the impairment was first recorded.

Premiums or discounts arising on securities are amortised over the securities' remaining contractual life.

Reverse transactions

Reverse transactions are operations whereby the ECB buys or sells assets under a repurchase agreement or conducts credit operations against collateral.

Under a repurchase agreement, securities are sold for cash with a simultaneous agreement to repurchase them from the counterparty at an agreed price on a set future date. Repurchase agreements are recorded as collateralised deposits on the liability side of the Balance Sheet. Securities sold under such an agreement remain on the Balance Sheet of the ECB.

Under a reverse repurchase agreement, securities are bought for cash with a simultaneous agreement to sell them back to the counterparty at an agreed price on a set future date. Reverse repurchase agreements are recorded as collateralised

[21] A minimum threshold of €100,000 applies for administrative accruals and provisions.

loans on the asset side of the Balance Sheet, but are not included in the ECB's security holdings.

Reverse transactions (including securities lending transactions) conducted under a programme offered by a specialised institution are recorded on the Balance Sheet only where collateral has been provided in the form of cash and this cash remains uninvested.

Off-balance-sheet instruments

Currency instruments, namely foreign exchange forward transactions, forward legs of foreign exchange swaps and other currency instruments involving an exchange of one currency for another at a future date, are included in the net foreign currency position for the purpose of calculating foreign exchange gains and losses.

Interest rate instruments are revalued on an item-by-item basis. Daily changes in the variation margin of open interest rate futures contracts, as well as interest rate swaps that are cleared via a central counterparty, are recorded in the Profit and Loss Account. The valuation of forward transactions in securities and of interest rate swaps that are not cleared via a central counterparty is carried out by the ECB based on generally accepted valuation methods using observable market prices and rates, as well as discount factors from the settlement dates to the valuation date.

Post-balance-sheet events

The values of assets and liabilities are adjusted for events that occur between the annual balance sheet date and the date on which the Executive Board authorises the submission of the ECB's Annual Accounts to the Governing Council for approval, if such events materially affect the condition of assets and liabilities at the balance sheet date.

Important post-balance-sheet events that do not affect the condition of assets and liabilities at the balance sheet date are disclosed in the notes.

Intra-ESCB balances/intra-Eurosystem balances

Intra-ESCB balances result primarily from cross-border payments in the EU that are settled in central bank money in euro. These transactions are for the most part initiated by private entities (i.e. credit institutions, corporations and individuals). They are settled in TARGET2 – the Trans-European Automated Real-time Gross settlement Express Transfer system – and give rise to bilateral balances in the TARGET2 accounts of EU central banks. These bilateral balances are netted and then assigned to the ECB on a daily basis, leaving each national central bank (NCB) with a single net bilateral position vis-à-vis the ECB only. Payments conducted by the ECB and settled in TARGET2 also affect the single net bilateral positions. These

positions in the books of the ECB represent the net claim or liability of each NCB against the rest of the European System of Central Banks (ESCB). Intra-Eurosystem balances of euro area NCBs vis-à-vis the ECB arising from TARGET2, as well as other intra-Eurosystem balances denominated in euro (e.g. interim profit distributions to NCBs), are presented on the Balance Sheet of the ECB as a single net asset or liability position and disclosed under “Other claims within the Eurosystem (net)” or “Other liabilities within the Eurosystem (net)”. Intra-ESCB balances of non-euro area NCBs vis-à-vis the ECB, arising from their participation in TARGET2,[22] are disclosed under “Liabilities to non-euro area residents denominated in euro”.

Intra-Eurosystem balances arising from the allocation of euro banknotes within the Eurosystem are included as a single net asset under “Claims related to the allocation of euro banknotes within the Eurosystem” (see “Banknotes in circulation” in the notes on accounting policies).

Intra-Eurosystem balances arising from the transfer of foreign reserve assets to the ECB by NCBs joining the Eurosystem are denominated in euro and reported under “Liabilities equivalent to the transfer of foreign reserves”.

Treatment of fixed assets

Fixed assets, including intangible assets, but with the exception of land and works of art, are valued at cost less depreciation. Land and works of art are valued at cost. The ECB’s main building is valued at cost less depreciation subject to impairment. For the depreciation of the ECB’s main building, costs are assigned to the appropriate asset components which are depreciated in accordance with their estimated useful lives. Depreciation is calculated on a straight-line basis over the expected useful life of the assets, beginning in the quarter after the asset is available for use. The useful lives applied for the main asset classes are as follows:

Buildings	20, 25 or 50 years
Plant in building	10 or 15 years
Technical equipment	4, 10 or 15 years
Computers, related hardware and software, and motor vehicles	4 years
Furniture	10 years

The depreciation period for capitalised refurbishment expenditure relating to the ECB’s existing rented premises is adjusted to take account of any events that have an impact on the expected useful life of the affected asset.

The ECB performs an annual impairment test of its main building based on International Accounting Standard (IAS) 36 “Impairment of assets”. If an impairment indicator is identified signalling that the main building may be impaired, the

[22] As at 31 December 2018 the non-euro area NCBs participating in TARGET2 were Българска народна банка (Bulgarian National Bank), Danmarks Nationalbank, Hrvatska narodna banka, Narodowy Bank Polski and Banca Naţională a României.

recoverable amount is estimated. An impairment loss is recorded in the Profit and Loss Account if the recoverable amount is less than the net book value.

Fixed assets costing less than €10,000 are written off in the year of acquisition.

Fixed assets that comply with the capitalisation criteria, but are still under construction or development, are recorded under the heading “Assets under construction”. The related costs are transferred to the relevant fixed asset headings once the assets are available for use.

The ECB’s post-employment benefits, other long-term benefits and termination benefits

The ECB operates defined benefit plans for its staff and the members of the Executive Board, as well as for the members of the Supervisory Board employed by the ECB.

The staff pension plan is funded by assets held in a long-term employee benefit fund. The compulsory contributions made by the ECB and the staff are reflected in the defined benefit pillar of the plan. Staff can make additional contributions on a voluntary basis in a defined contribution pillar that can be used to provide additional benefits.[23] These additional benefits are determined by the amount of voluntary contributions together with the investment returns arising from those contributions.

Unfunded arrangements are in place for the post-employment and other long-term benefits of members of the Executive Board and members of the Supervisory Board employed by the ECB. For staff, unfunded arrangements are in place for post-employment benefits other than pensions and for other long-term benefits and termination benefits.

Net defined benefit liability

The liability recognised in the Balance Sheet under “Other liabilities” in respect of the defined benefit plans, including other long-term benefits and termination benefits, is the present value of the defined benefit obligation at the balance sheet date, less the fair value of plan assets used to fund the related obligation.

The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is calculated by discounting the estimated future cash flows using a rate which is determined by reference to market yields at the balance sheet date on high-quality euro-denominated corporate bonds that have similar terms to maturity to the related obligation.

23 The funds accumulated by a staff member through voluntary contributions can be used at retirement to purchase an additional pension. This pension is included in the defined benefit obligation from that point on.

Actuarial gains and losses can arise from experience adjustments (where actual outcomes are different from the actuarial assumptions previously made) and changes in actuarial assumptions.

Net defined benefit cost

The net defined benefit cost is split into components reported in the Profit and Loss Account and remeasurements in respect of post-employment benefits shown in the Balance Sheet under “Revaluation accounts”.

The net amount charged to the Profit and Loss Account comprises:

(a) the current service cost of the defined benefits accruing for the year;

(b) the past service cost of the defined benefits resulting from a plan amendment;

(c) net interest at the discount rate on the net defined benefit liability;

(d) remeasurements in respect of other long-term benefits and termination benefits of a long-term nature, if any, in their entirety.

The net amount shown under “Revaluation accounts” comprises the following items:

(a) actuarial gains and losses on the defined benefit obligation;

(b) the actual return on plan assets, excluding amounts included in the net interest on the net defined benefit liability;

(c) any change in the effect of the asset ceiling, excluding amounts included in the net interest on the net defined benefit liability.

These amounts are valued annually by independent actuaries to establish the appropriate liability in the financial statements.

Banknotes in circulation

The ECB and the euro area NCBs, which together comprise the Eurosystem, issue euro banknotes.[24] The total value of euro banknotes in circulation is allocated to the Eurosystem central banks on the last working day of each month in accordance with the banknote allocation key.[25]

The ECB has been allocated a share of 8% of the total value of euro banknotes in circulation, which is disclosed in the Balance Sheet under the liability item

[24] Decision of the ECB of 13 December 2010 on the issue of euro banknotes (recast) (ECB/2010/29) (2011/67/EU) (OJ L 35, 9.2.2011, p. 26), as amended.

[25] “Banknote allocation key” means the percentages that result from taking into account the ECB’s share in the total euro banknote issue and applying the subscribed capital key to the NCBs’ share in that total.

"Banknotes in circulation". The ECB's share of the total euro banknote issue is backed by claims on the NCBs. These claims, which bear interest,[26] are disclosed under the sub-item "Intra-Eurosystem claims: claims related to the allocation of euro banknotes within the Eurosystem" (see "Intra-ESCB balances/intra-Eurosystem balances" in the notes on accounting policies). Interest income on these claims is included in the Profit and Loss Account under the item "Interest income arising from the allocation of euro banknotes within the Eurosystem".

Interim profit distribution

An amount that is equal to the sum of the ECB's income on euro banknotes in circulation and income arising from the securities held for monetary policy purposes purchased under (a) the Securities Markets Programme; (b) the third covered bond purchase programme; (c) the asset-backed securities purchase programme; and (d) the public sector purchase programme is distributed in January of the following year by means of an interim profit distribution, unless otherwise decided by the Governing Council.[27] It is distributed in full unless it is higher than the ECB's net profit for the year and subject to any decisions by the Governing Council to make transfers to the provision for foreign exchange rate, interest rate, credit and gold price risks. The Governing Council may also decide to reduce the amount of the income on euro banknotes in circulation to be distributed in January by the amount of the costs incurred by the ECB in connection with the issue and handling of euro banknotes.

Changes to accounting policies

In 2018 there were no changes to the accounting policies applied by the ECB.

Other issues

In accordance with Article 27 of the Statute of the ESCB, and on the basis of a recommendation of the Governing Council, the EU Council has approved the appointment of Baker Tilly GmbH & Co. KG Wirtschaftsprüfungsgesellschaft, Düsseldorf (Federal Republic of Germany) as the external auditors of the ECB for a five-year period up to the end of the financial year 2022. This five-year period can be extended for up to two additional financial years.

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[26] Decision (EU) 2016/2248 of the ECB of 3 November 2016 on the allocation of monetary income of the national central banks of Member States whose currency is the euro (ECB/2016/36) (OJ L 347, 20.12.2016, p. 26).

[27] Decision (EU) 2015/298 of the ECB of 15 December 2014 on the interim distribution of the income of the ECB (recast) (ECB/2014/57) (OJ L 53, 25.2.2015, p. 24), as amended.

Notes on the Balance Sheet

1 Gold and gold receivables

As at 31 December 2018 the ECB held 16,229,522 ounces[28] of fine gold, the market value of which amounted to €18,193 million (2017: €17,558 million). No transactions in gold took place in 2018 and the ECB's holdings therefore remained unchanged compared with their level as at 31 December 2017. The increase in the euro equivalent value of these holdings was due to the rise in the market price of gold in euro terms (see "Gold and foreign currency assets and liabilities" in the notes on accounting policies and note 14, "Revaluation accounts").

2 Claims on non-euro area and euro area residents denominated in foreign currency

2.1 Receivables from the IMF

This asset represents the ECB's holdings of SDRs and amounted to €692 million as at 31 December 2018 (2017: €670 million). It arises as the result of a two-way SDR buying and selling arrangement with the International Monetary Fund (IMF), whereby the IMF is authorised to arrange sales or purchases of SDRs against euro, on behalf of the ECB, within minimum and maximum holding levels. For accounting purposes, SDRs are treated as a foreign currency (see "Gold and foreign currency assets and liabilities" in the notes on accounting policies). The increase in the euro equivalent value of the ECB's holdings of SDRs was mainly due to the appreciation of the SDR against the euro during 2018.

2.2 Balances with banks and security investments, external loans and other external assets; and claims on euro area residents denominated in foreign currency

These two items consist of balances with banks and loans denominated in foreign currency, and investments in securities denominated in US dollars, Japanese yen and Chinese renminbi.

[28] This corresponds to 504.8 tonnes.

Claims on non-euro area residents	2018 € millions	2017 € millions	Change € millions
Current accounts	7,755	6,794	961
Money market deposits	1,942	2,317	(375)
Reverse repurchase agreements	611	(0)	611
Security investments	39,415	34,650	4,764
Total	**49,723**	**43,761**	**5,962**

Claims on euro area residents	2018 € millions	2017 € millions	Change € millions
Current accounts	1	1	0
Money market deposits	602	2,422	(1,820)
Reverse repurchase agreements	393	1,288	(895)
Total	**997**	**3,712**	**(2,715)**

The total value of these items increased in 2018, mainly owing to the appreciation of both the US dollar and the Japanese yen against the euro. Income received during the year, primarily on the US dollar portfolio, also contributed to the increase in the total value of these items.

The ECB's net foreign currency holdings[29] as at 31 December 2018 were as follows:

	2018 Currency in millions	2017 Currency in millions
US dollars	47,551	46,761
Japanese yen	1,093,460	1,093,563
Chinese renminbi	3,886	3,755

3 Other claims on euro area credit institutions denominated in euro

As at 31 December 2018 this item consisted of current account balances with euro area residents amounting to €300 million (2017: €143 million).

29 These holdings comprise assets minus liabilities denominated in the given foreign currency that are subject to foreign currency revaluation. They are included under the headings "Claims on non-euro area residents denominated in foreign currency", "Claims on euro area residents denominated in foreign currency", "Accruals and prepaid expenses", "Off-balance-sheet instruments revaluation differences" (liabilities side) and "Accruals and income collected in advance" and take into account foreign exchange forward and swap transactions included in off-balance-sheet items. Price gains on financial instruments denominated in foreign currency arising as a result of revaluations are not included.

4 Securities of euro area residents denominated in euro

4.1 Securities held for monetary policy purposes

As at 31 December 2018 this item consisted of securities acquired by the ECB within the scope of the three covered bond purchase programmes (CBPPs), the Securities Markets Programme (SMP), the asset-backed securities purchase programme (ABSPP) and the public sector purchase programme (PSPP).[30]

Purchases under the first CBPP were completed on 30 June 2010, while the second CBPP ended on 31 October 2012. The Governing Council decided to cease further SMP purchases on 6 September 2012.

In 2018 the Eurosystem continued its securities purchases under the asset purchase programme (APP), which consists of the third CBPP, the ABSPP, the PSPP and the corporate sector purchase programme (CSPP).[31] The monthly pace of combined net APP purchases by the NCBs and the ECB was €30 billion on average until September 2018, and €15 billion from October 2018 until the end of the year, when the net purchases ended. The Governing Council intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it starts raising the key ECB interest rates, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.

The securities purchased under all of these programmes are valued on an amortised cost basis subject to impairment (see “Securities” in the notes on accounting policies).

The amortised cost of the securities held by the ECB and their market value[32] (which is not recorded on the Balance Sheet or in the Profit and Loss Account and is provided for comparison purposes only) are as follows:

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30 The ECB does not acquire securities under the corporate sector purchase programme (CSPP).

31 Further details on the APP can be found on the ECB’s website.

32 Market values are indicative and are derived on the basis of market quotes. When market quotes are not available, market prices are estimated using internal Eurosystem models.

	2018 € millions		2017 € millions		Change € millions	
	Amortised cost	Market value	Amortised cost	Market value	Amortised cost	Market value
First covered bond purchase programme (CBPP1)	348	363	619	655	(271)	(292)
Second covered bond purchase programme (CBPP2)	341	365	386	422	(45)	(57)
Third covered bond purchase programme (CBPP3)	21,545	21,706	19,733	19,959	1,812	1,747
Securities Markets Programme (SMP)	5,484	6,051	6,644	7,555	(1,160)	(1,504)
Asset-backed securities purchase programme (ABSPP)	27,511	27,262	25,015	25,045	2,496	2,218
Public sector purchase programme (PSPP)	196,428	198,401	175,990	177,088	20,438	21,313
Total	**251,656**	**254,148**	**228,386**	**230,722**	**23,270**	**23,426**

The decrease in the amortised cost of the portfolios held under the first and second CBPPs and the SMP was due to redemptions.

The Governing Council assesses on a regular basis the financial risks associated with the securities held under all these programmes.

Impairment tests are conducted on an annual basis, using data as at the year-end, and are approved by the Governing Council. In these tests, impairment indicators are assessed separately for each programme. In cases where impairment indicators were observed, further analysis has been performed to confirm that the cash flows of the underlying securities have not been affected by an impairment event. Based on the results of this year's impairment tests, no losses have been recorded by the ECB for the securities held in its monetary policy portfolios in 2018.

5 Intra-Eurosystem claims

5.1 Claims related to the allocation of euro banknotes within the Eurosystem

This item consists of the claims of the ECB vis-à-vis the euro area NCBs relating to the allocation of euro banknotes within the Eurosystem (see "Banknotes in circulation" in the notes on accounting policies) and as at 31 December 2018 amounted to €98,490 million (2017: €93,657 million). The remuneration of these claims is calculated daily at the latest available marginal interest rate used by the Eurosystem in its tenders for main refinancing operations[33] (see note 22.2, "Interest income arising from the allocation of euro banknotes within the Eurosystem").

33 Since 16 March 2016 the interest rate used by the Eurosystem in its tenders for main refinancing operations has been 0.00%.

6 Other assets

6.1 Tangible and intangible fixed assets

These assets comprised the following items on 31 December 2018:

	2018 € millions	2017 € millions	Change € millions
Cost			
Land and buildings	1,012	1,006	5
Plant in building	221	222	(1)
Computer hardware and software	124	110	14
Equipment, furniture and motor vehicles	93	95	(2)
Assets under construction	1	3	(2)
Other fixed assets	11	10	1
Total cost	**1,463**	**1,447**	**16**
Accumulated depreciation			
Land and buildings	(118)	(96)	(22)
Plant in building	(64)	(48)	(16)
Computer hardware and software	(89)	(74)	(15)
Equipment, furniture and motor vehicles	(43)	(32)	(11)
Other fixed assets	(2)	(1)	(0)
Total accumulated depreciation	**(315)**	**(251)**	**(64)**
Net book value	**1,148**	**1,196**	**(48)**

In respect of the ECB's main building, an impairment test was conducted at the end of the year and no impairment loss has been recorded.

6.2 Other financial assets

This item consists mainly of the investment of the ECB's own funds held as a direct counterpart to the capital and reserves and the provision for foreign exchange rate, interest rate, credit and gold price risks. It also includes 3,211 shares in the Bank for International Settlements (BIS) at the acquisition cost of €42 million.

The components of this item are as follows:

	2018 € millions	2017 € millions	Change € millions
Current accounts in euro	0	0	0
Securities denominated in euro	17,913	18,417	(504)
Reverse repurchase agreements in euro	2,575	2,044	531
Other financial assets	42	42	(0)
Total	**20,529**	**20,503**	**27**

The small net increase in this item in 2018 was due to the reinvestment of interest income generated on this portfolio, which more than offset the reduction in the market value of the euro-denominated securities held in the ECB's own funds portfolio.

6.3 Off-balance-sheet instruments revaluation differences

This item is composed primarily of valuation changes in swap and forward transactions in foreign currency that were outstanding on 31 December 2018 (see note 19, "Foreign exchange swap and forward transactions"). These valuation changes amount to €578 million (2017: €450 million) and are the result of the conversion of such transactions into their euro equivalents at the exchange rates prevailing on the balance sheet date, compared with the euro values resulting from the conversion of the transactions at the average cost of the respective foreign currency on that date (see "Off-balance-sheet instruments" and "Gold and foreign currency assets and liabilities" in the notes on accounting policies).

Valuation gains on outstanding interest rate swap transactions are also included in this item (see note 18, "Interest rate swaps").

6.4 Accruals and prepaid expenses

On 31 December 2018 this item stood at €2,738 million (2017: €2,597 million). It comprised mainly accrued coupon interest on securities, including outstanding interest paid at acquisition, amounting to €2,589 million (2017: €2,476 million) (see note 2.2, "Balances with banks and security investments, external loans and other external assets; and claims on euro area residents denominated in foreign currency", note 4, "Securities of euro area residents denominated in euro", and note 6.2, "Other financial assets").

Moreover, this item includes (a) accrued income from common Eurosystem projects (see note 27, "Other income"); (b) miscellaneous prepayments; (c) accrued interest income on other financial assets and liabilities; and (d) accrued income in connection with the Single Supervisory Mechanism (SSM) (see note 25, "Net income/expense from fees and commissions").

6.5 Sundry

On 31 December 2018 this item amounted to €2,039 million (2017: €1,528 million) and it mainly included the accrued amount of the ECB's interim profit distribution of €1,191 million (2017: €988 million) (see "Interim profit distribution" in the notes on accounting policies and note 11.2, "Other liabilities within the Eurosystem (net)").

It also comprised balances with a value of €567 million (2017: €492 million) related to swap and forward transactions in foreign currency outstanding on 31 December 2018 that arose from the conversion of such transactions into their euro equivalents at the respective currency's average cost on the balance sheet date, compared with the euro values at which the transactions were initially recorded (see "Off-balance-sheet instruments" in the notes on accounting policies).

This item also included an amount of €244 million (2017: €1 million) which corresponds to the annual supervisory fees receivable from the supervised entities as at 31 December 2018. In order to recover the expenditure incurred for performing its supervisory tasks, the ECB invoiced the annual fees to the supervised entities in December 2018 with a payment date in January 2019 (see note 25, "Net income/expense from fees and commissions"). In 2017 the annual supervisory fees were invoiced in October and therefore only €1 million remained to be collected at the end of that year.

7 Banknotes in circulation

This item consists of the ECB's share (8%) of total euro banknotes in circulation (see "Banknotes in circulation" in the notes on accounting policies) and as at 31 December 2018 amounted to €98,490 million (2017: €93,657 million).

8 Other liabilities to euro area credit institutions denominated in euro

The Eurosystem central banks have the possibility of accepting cash as collateral in their PSPP securities lending facilities without having to reinvest it. In the case of the ECB, these operations are conducted via a specialised institution.

As at 31 December 2018 the outstanding value of such PSPP securities lending transactions conducted with euro area credit institutions was €1,399 million (2017: €1,061 million). Cash received as collateral was transferred to TARGET2 accounts. As the cash remained uninvested at the year-end, these transactions were recorded on the Balance Sheet (see "Reverse transactions" in the notes on accounting policies).[34]

[34] Securities lending transactions that do not result in uninvested cash collateral at the year-end are recorded in off-balance-sheet accounts (see note 16, "Securities lending programmes").

9 Liabilities to other euro area residents denominated in euro

9.1 Other liabilities

As at 31 December 2018 this position amounted to €9,152 million (2017: €1,150 million). This item includes deposits or payments of funds accepted by the ECB and made by or on behalf of the participants in EURO1 and RT1[35] which are used as a guarantee fund for EURO1 or to support settlement in RT1. It also includes deposits made in 2018 by the European Financial Stability Facility (EFSF) and the European Stability Mechanism (ESM). In accordance with Article 21 of the Statute of the ESCB, the ECB may act as fiscal agent for Union institutions, bodies, offices or agencies, central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of Member States.

10 Liabilities to non-euro area residents denominated in euro

As at 31 December 2018 this position amounted to €10,361 million (2017: €19,549 million). The largest component was an amount of €4,619 million (2017: €6,062 million), consisting of balances held with the ECB by non-euro area central banks that arise from, or are the counterpart of, transactions processed via the TARGET2 system. The decrease in these balances in 2018 was due to payments from non-euro area residents to euro area residents.

This item also included an amount of €3,682 million (2017: €10,056 million) arising from the standing reciprocal currency arrangement with the Federal Reserve Bank of New York. Under this arrangement, US dollars are provided by the Federal Reserve System to the ECB by means of swap transactions, with the aim of offering short-term US dollar funding to Eurosystem counterparties. The ECB simultaneously enters into back-to-back swap transactions with euro area NCBs, which use the resulting funds to conduct US dollar liquidity-providing operations with Eurosystem counterparties in the form of reverse transactions. The back-to-back swap transactions result in intra-Eurosystem balances between the ECB and the NCBs (see note 11.2, “Other liabilities within the Eurosystem (net)”). Furthermore, the swap transactions conducted with the Federal Reserve System and the euro area NCBs result in forward claims and liabilities that are recorded in off-balance-sheet accounts (see note 19, “Foreign exchange swap and forward transactions”).

The remainder of this item consists of an amount of €2,059 million (2017: €3,432 million) arising from outstanding PSPP securities lending transactions conducted with non-euro area residents in which cash was received as collateral and

[35] EURO1 and RT1 are payment systems operated by ABE CLEARING S.A.S à capital variable (EBA Clearing).

transferred to TARGET2 accounts (see note 8, “Other liabilities to euro area credit institutions denominated in euro”).

11 Intra-Eurosystem liabilities

11.1 Liabilities equivalent to the transfer of foreign reserves

These represent the liabilities to euro area NCBs that arose from the transfer of foreign reserve assets to the ECB when they joined the Eurosystem. No changes occurred in 2018.

	Since 1 January 2015 € millions
Nationale Bank van België/Banque Nationale de Belgique	1,436
Deutsche Bundesbank	10,430
Eesti Pank	112
Central Bank of Ireland	673
Bank of Greece	1,178
Banco de España	5,123
Banque de France	8,217
Banca d’Italia	7,134
Central Bank of Cyprus	88
Latvijas Banka	163
Lietuvos bankas	239
Banque centrale du Luxembourg	118
Central Bank of Malta	38
De Nederlandsche Bank	2,320
Oesterreichische Nationalbank	1,138
Banco de Portugal	1,010
Banka Slovenije	200
Národná banka Slovenska	448
Suomen Pankki – Finlands Bank	728
Total	**40,793**

The remuneration of these liabilities is calculated daily at the latest available marginal interest rate used by the Eurosystem in its tenders for main refinancing operations, adjusted to reflect a zero return on the gold component (see note 22.3, “Remuneration of NCBs’ claims in respect of foreign reserves transferred”).

11.2 Other liabilities within the Eurosystem (net)

In 2018 this item consisted mainly of the TARGET2 balances of euro area NCBs vis-à-vis the ECB (see “Intra-ESCB balances/intra-Eurosystem balances” in the notes on accounting policies). The increase in this position resulted mainly from net purchases

of securities under the APP (see note 4, “Securities of euro area residents denominated in euro”), which were settled via TARGET2 accounts. The decrease in the amounts related to the back-to-back swap transactions conducted with NCBs in connection with US dollar liquidity-providing operations also contributed to the increase in the liability in 2018 (see note 10, “Liabilities to non-euro area residents denominated in euro”). The impact of these two factors was partially offset by deposits received from the EFSF and the ESM via TARGET2 (see note 9, “Liabilities to other euro area residents denominated in euro”).

The remuneration of TARGET2 positions, with the exception of balances arising from back-to-back swap transactions in connection with US dollar liquidity-providing operations, is calculated daily at the latest available marginal interest rate used by the Eurosystem in its tenders for main refinancing operations.

This item also includes the amount due to euro area NCBs in respect of the ECB’s interim profit distribution (see “Interim profit distribution” in the notes on accounting policies).

	2018 € millions	2017 € millions
Due to euro area NCBs in respect of TARGET2	1,349,908	1,263,961
Due from euro area NCBs in respect of TARGET2	(1,107,984)	(1,047,197)
Due to euro area NCBs in respect of the ECB’s interim profit distribution	1,191	988
Other liabilities within the Eurosystem (net)	**243,115**	**217,752**

12 Other liabilities

12.1 Off-balance-sheet instruments revaluation differences

This item is composed mainly of valuation changes in swap and forward transactions in foreign currency that were outstanding on 31 December 2018 (see note 19, “Foreign exchange swap and forward transactions”). These valuation changes amounted to €641 million (2017: €431 million) and are the result of the conversion of such transactions into their euro equivalents at the exchange rates prevailing on the balance sheet date, compared with the euro values resulting from the conversion of the transactions at the average cost of the respective foreign currency on that date (see “Off-balance-sheet instruments” and “Gold and foreign currency assets and liabilities” in the notes on accounting policies).

Valuation losses on outstanding interest rate swaps are also included in this item (see note 18, “Interest rate swaps”).

12.2 Accruals and income collected in advance

This item comprised the following components on 31 December 2018:

	2018 € millions	2017 € millions	Change € millions
Administrative accruals	48	41	7
Financial instruments	5	7	(2)
Income collected in advance	1	28	(27)
Total	**54**	**76**	**(22)**

12.3 Sundry

On 31 December 2018 this item stood at €1,178 million (2017: €1,063 million). It included balances amounting to €580 million (2017: €498 million) related to swap and forward transactions in foreign currency that were outstanding on 31 December 2018 (see note 19, "Foreign exchange swap and forward transactions"). These balances arose from the conversion of such transactions into their euro equivalents at the respective currency's average cost on the balance sheet date, compared with the euro values at which the transactions were initially recorded (see "Off-balance-sheet instruments" in the notes on accounting policies).

In addition, this item includes the ECB's net defined benefit liability in respect of the post-employment and other long-term benefits of its staff and the members of the Executive Board, as well as the members of the Supervisory Board employed by the ECB. The termination benefits of ECB staff are also included.

The ECB's post-employment benefits, other long-term benefits and termination benefits[36]

Balance Sheet

The amounts recognised in the Balance Sheet in respect of post-employment, other long-term and staff termination benefits were as follows:

	2018 Staff € millions	2018 Boards € millions	2018 Total € millions	2017 Staff € millions	2017 Boards € millions	2017 Total € millions
Present value of obligation	1,608	29	1,637	1,510	29	1,539
Fair value of plan assets	(1,080)	-	(1,080)	(1,017)	-	(1,017)
Net defined benefit liability recognised in the Balance Sheet	**528**	**29**	**558**	**493**	**29**	**522**

In 2018 the present value of the obligation vis-à-vis staff of €1,608 million (2017: €1,510 million) included unfunded benefits amounting to €226 million (2017: €225 million) relating to post-employment benefits other than pensions, to other long-term benefits and to staff termination benefits. The present value of the

36 The columns labelled "Boards" report the amounts in respect of both the Executive Board and the Supervisory Board.

obligation vis-à-vis the members of the Executive Board and the members of the Supervisory Board of €29 million (2017: €29 million) relates solely to unfunded arrangements in place for post-employment and other long-term benefits.

Profit and Loss Account

The amounts recognised in the Profit and Loss Account in 2018 were as follows:

	2018 Staff € millions	2018 Boards € millions	2018 Total € millions	2017 Staff € millions	2017 Boards € millions	2017 Total € millions
Current service cost	96	2	98	153	2	155
Past service cost	-	-	-	4	-	4
Net interest on the net defined benefit liability	10	1	11	10	1	11
of which:						
Interest cost on the obligation	*32*	*1*	*33*	*28*	*1*	*29*
Interest income on plan assets	*(22)*	-	*(22)*	*(18)*	-	*(18)*
Remeasurement (gains)/losses on other long-term benefits	(11)	(0)	(11)	(1)	0	(1)
Total related to actuarial valuation	**96**	**3**	**98**	**167**	**3**	**169**
Release of CTS provision	-	-	-	(9)	-	(9)
Total included in "Staff costs" after the release of provision	**96**	**3**	**98**	**158**	**3**	**160**

The current service cost declined in 2018 to €98 million (2017: €155 million), mainly owing to a non-recurring charge included in 2017 related to the introduction of the temporary Career Transition Support (CTS) scheme addressed to long-serving staff members to facilitate their voluntary transition to a career outside the ECB under specified conditions. Furthermore, an increase in the discount rate from 2.0% in 2016 to 2.1% in 2017 contributed to the overall decrease.[37]

Changes in the defined benefit obligation, plan assets and remeasurement results

Changes in the present value of the defined benefit obligation were as follows:

[37] The current service cost is estimated using the discount rate that applied in the previous year.

	2018 Staff € millions	2018 Boards € millions	2018 Total € millions	2017 Staff € millions	2017 Boards € millions	2017 Total € millions
Opening defined benefit obligation	1,510	29	1,539	1,361	28	1,389
Current service cost	96	2	98	153	2	155
Past service cost	-	-	-	4	-	4
Interest cost on the obligation	32	1	33	28	1	29
Contributions paid by plan participants[38]	33	0	33	23	0	23
Benefits paid	(43)	(3)	(46)	(12)	(1)	(13)
Remeasurement (gains)/losses	(19)	1	(19)	(48)	(1)	(49)
Closing defined benefit obligation	**1,608**	**29**	**1,637**	**1,510**	**29**	**1,539**

The benefits paid increased in 2018 to €46 million (2017: €13 million), mainly due to one-off termination payments to staff members accepted for the CTS scheme.

The total remeasurement gains of €19 million on the defined benefit obligation in 2018 arose as a result of the increase in the discount rate from 2.1% in 2017 to 2.3% in 2018 that was partially offset by experience adjustments reflecting the difference between the actuarial assumptions made in the previous year's report and actual experience.

Changes in 2018 in the fair value of plan assets in the defined benefit pillar relating to staff were as follows:

	2018 € millions	2017 € millions
Opening fair value of plan assets	1,017	878
Interest income on plan assets	22	18
Remeasurement gains/(losses)	(34)	55
Contributions paid by employer	56	52
Contributions paid by plan participants	33	23
Benefits paid	(13)	(9)
Closing fair value of plan assets	**1,080**	**1,017**

The remeasurement loss on plan assets in 2018 reflected the fact that the actual return on the fund units was lower than the estimated interest income on plan assets.

Changes in 2018 in the remeasurement results (see note 14, "Revaluation accounts") were as follows:

38 The compulsory contributions paid by the staff are 7.4%, whilst those paid by the ECB are 20.7% of the basic salary.

	2018 € millions	2017 € millions
Opening remeasurement losses	(103)	(205)
Gains/(losses) on plan assets	(34)	55
Gains on obligation	19	49
Losses recognised in the Profit and Loss Account	(11)	(1)
Closing remeasurement losses included under "Revaluation accounts"	**(129)**	**(103)**

Key assumptions

In preparing the valuations referred to in this note, the actuaries have used assumptions which the Executive Board has accepted for the purposes of accounting and disclosure. The principal assumptions used for the purposes of calculating the liability for post-employment benefits and other long-term benefits are as follows:

	2018 %	2017 %
Discount rate	2.30	2.10
Expected return on plan assets[39]	3.30	3.10
General future salary increases[40]	2.00	2.00
Future pension increases[41]	1.30	1.30

Furthermore, voluntary contributions made by staff in a defined contribution pillar in 2018 amounted to €140 million (2017: €150 million). These contributions are invested in the plan assets and give rise to a corresponding obligation of equal value.

13 Provisions

This item consists mainly of a provision for foreign exchange rate, interest rate, credit and gold price risks.

The provision for foreign exchange rate, interest rate, credit and gold price risks will be used to the extent deemed necessary by the Governing Council to offset future realised and unrealised losses. The size of and continuing requirement for this provision is reviewed annually, based on the ECB's assessment of its exposure to these risks and taking a range of factors into account. Its size, together with any

39 These assumptions were used for calculating the part of the ECB's defined benefit obligation which is funded by assets with an underlying capital guarantee.

40 In addition, allowance is made for prospective individual salary increases of up to 1.8% per annum, depending on the age of the plan participants.

41 In accordance with the ECB's pension plan rules, pensions will be increased annually. If general salary adjustments for ECB employees are below price inflation, any increase in pensions will be in line with the general salary adjustments. If the general salary adjustments exceed price inflation, they will be applied to determine the increase in pensions, provided that the financial position of the ECB's pension plans permits such an increase.

amount held in the general reserve fund, may not exceed the value of the ECB's capital paid up by the euro area NCBs.

As at 31 December 2018 the provision for foreign exchange rate, interest rate, credit and gold risks amounted to €7,620 million, unchanged from 2017. This amount corresponds to the value of the ECB's capital paid up by the euro area NCBs as at that date.

14 Revaluation accounts

This item consists mainly of revaluation balances arising from unrealised gains on assets, liabilities and off-balance-sheet instruments (see "Income recognition", "Gold and foreign currency assets and liabilities", "Securities" and "Off-balance-sheet instruments" in the notes on accounting policies). It also includes the remeasurements of the ECB's net defined benefit liability in respect of post-employment benefits (see "The ECB's post-employment benefits, other long-term benefits and termination benefits" in the notes on accounting policies and note 12.3, "Sundry").

	2018 € millions	2017 € millions	Change € millions
Gold	14,298	13,664	634
Foreign currency	10,300	7,851	2,449
Securities and other instruments	453	533	(80)
Net defined benefit liability in respect of post-employment benefits	(129)	(103)	(26)
Total	**24,922**	**21,945**	**2,977**

The increase in the size of the revaluation accounts is due to the depreciation of the euro against the US dollar, Japanese yen and gold in 2018.

The foreign exchange rates used for the year-end revaluation were as follows:

Exchange rates	2018	2017
US dollars per euro	1.1450	1.1993
Japanese yen per euro	125.85	135.01
Chinese renminbi per euro	7.8751	7.8044
Euro per SDR	1.2154	1.1876
Euro per fine ounce of gold	1,120.961	1,081.881

15 Capital and reserves

15.1 Capital

The subscribed capital of the ECB is €10,825 million. The capital paid up by euro area and non-euro area NCBs amounts to €7,740 million.

The euro area NCBs have fully paid up their share of subscribed capital, which since 1 January 2015 has amounted to €7,620 million, as shown in the table.

	Capital key since 1 January 2015[42] %	Paid-up capital since 1 January 2015 € millions
Nationale Bank van België/Banque Nationale de Belgique	2.4778	268
Deutsche Bundesbank	17.9973	1,948
Eesti Pank	0.1928	21
Central Bank of Ireland	1.1607	126
Bank of Greece	2.0332	220
Banco de España	8.8409	957
Banque de France	14.1792	1,535
Banca d'Italia	12.3108	1,333
Central Bank of Cyprus	0.1513	16
Latvijas Banka	0.2821	31
Lietuvos bankas	0.4132	45
Banque centrale du Luxembourg	0.2030	22
Central Bank of Malta	0.0648	7
De Nederlandsche Bank	4.0035	433
Oesterreichische Nationalbank	1.9631	213
Banco de Portugal	1.7434	189
Banka Slovenije	0.3455	37
Národná banka Slovenska	0.7725	84
Suomen Pankki – Finlands Bank	1.2564	136
Total	**70.3915**	**7,620**

The non-euro area NCBs are required to pay up 3.75% of their subscribed capital as a contribution to the operational costs of the ECB. Since 1 January 2015 this contribution has amounted to a total of €120 million. Non-euro area NCBs are not entitled to receive any share of the distributable profits of the ECB, nor are they liable to cover any loss of the ECB.

The non-euro area NCBs have paid up the following amounts:

[42] The shares of the individual NCBs in the key for subscription to the ECB's capital were last changed on 1 January 2014. However, on 1 January 2015, owing to the entry of Lithuania into the euro area, the total capital key weight of euro area NCBs in the ECB's overall capital increased, whereas the total capital key weight of non-euro area NCBs decreased. No changes have taken place since then.

	Capital key since 1 January 2015 %	Paid-up capital since 1 January 2015 € millions
Българска народна банка (Bulgarian National Bank)	0.8590	3
Česká národní banka	1.6075	7
Danmarks Nationalbank	1.4873	6
Hrvatska narodna banka	0.6023	2
Magyar Nemzeti Bank	1.3798	6
Narodowy Bank Polski	5.1230	21
Banca Naţională a României	2.6024	11
Sveriges Riksbank	2.2729	9
Bank of England	13.6743	56
Total	**29.6085**	**120**

Off-balance-sheet instruments

16 Securities lending programmes

As part of the management of the ECB's own funds, the ECB has a securities lending programme agreement in place under which a specialised institution enters into securities lending transactions on behalf of the ECB.

In addition, in accordance with the Governing Council's decisions, the ECB has made available for lending its holdings of securities purchased under the first, second and third CBPPs, as well as its holdings of securities purchased under the PSPP and those purchased under the SMP that are also eligible for purchase under the PSPP.[43]

Unless these securities lending operations are conducted against cash collateral that remains uninvested at the end of the year, they are recorded in off-balance-sheet accounts.[44] Such securities lending operations with a value of €9,646 million (2017: €13,365 million) were outstanding as at 31 December 2018. Of this amount, €4,440 million (2017: €7,173 million) related to the lending of securities held for monetary policy purposes.

17 Interest rate futures

As at 31 December 2018 the following foreign currency transactions, presented at year-end market rates, were outstanding:

Foreign currency interest rate futures	2018 Contract value € millions	2017 Contract value € millions	Change € millions
Purchases	13,780	6,518	7,262
Sales	22,731	6,585	16,147

These transactions were conducted in the context of the management of the ECB's foreign reserves.

18 Interest rate swaps

Interest rate swap transactions with a notional value of €519 million (2017: €416 million), presented at year-end market rates, were outstanding as at

[43] The ECB does not purchase securities under the CSPP and consequently has no related holdings available for lending.

[44] If cash collateral remains uninvested at the year-end, these transactions are recorded in on-balance-sheet accounts (see note 8, "Other liabilities to euro area credit institutions denominated in euro", and note 10, "Liabilities to non-euro area residents denominated in euro").

31 December 2018. These transactions were conducted in the context of the management of the ECB's foreign reserves.

19 Foreign exchange swap and forward transactions

Management of foreign reserves

Foreign exchange swap and forward transactions were conducted in 2018 in the context of the management of the ECB's foreign reserves. Claims and liabilities resulting from these transactions that were outstanding as at 31 December 2018 are presented at year-end market rates as follows:

Foreign exchange swap and forward transactions	2018 € millions	2017 € millions	Change € millions
Claims	2,905	2,732	174
Liabilities	2,981	2,719	262

Liquidity-providing operations

US dollar-denominated claims and liabilities with a settlement date in 2018 arose in connection with the provision of US dollar liquidity to Eurosystem counterparties (see note 10, "Liabilities to non-euro area residents denominated in euro").

20 Administration of borrowing and lending operations

In 2018 the ECB continued to be responsible for the administration of the borrowing and lending operations of the EU under the medium-term financial assistance facility, the European Financial Stabilisation Mechanism, the European Financial Stability Facility and the European Stability Mechanism (ESM), as well as under the loan facility agreement for Greece. In 2018 the ECB processed payments related to these operations, as well as payments in the form of member subscriptions to the ESM's authorised capital stock.

21 Contingent liabilities from pending lawsuits

Several lawsuits have been filed against the ECB and other EU institutions by a number of depositors, shareholders and bondholders of Cypriot credit institutions. The applicants allege that they have suffered financial losses as a result of acts that they deem to have led to the restructuring of these credit institutions in the context of the financial assistance programme for Cyprus. Two of these cases were dismissed on substance by the General Court of the European Union in 2018 and an appeal against these judgments is currently pending before the Court of Justice of the

European Union. This follows orders of the General Court in 2014 which found twelve similar cases inadmissible in their entirety and, following appeals, judgments of the Court of Justice in 2016 which either confirmed the inadmissibility or ruled in favour of the ECB. The ECB's involvement in the process leading up to the conclusion of the financial assistance programme was limited to the provision of technical advice, pursuant to the ESM Treaty, acting in liaison with the European Commission, as well as the issuance of a non-binding opinion on the Cypriot draft resolution law. It is therefore considered that no losses will be incurred by the ECB as a result of these cases.

Notes on the Profit and Loss Account

22 Net interest income

22.1 Interest income on foreign reserve assets

This item includes interest income, net of interest expense, in respect of the ECB's net foreign reserve assets, as follows:

	2018 € millions	2017 € millions	Change € millions
Interest income on current accounts	8	5	3
Interest income on money market deposits	74	55	19
Interest expense on repurchase agreements	(6)	(1)	(4)
Interest income on reverse repurchase agreements	44	37	7
Interest income on securities	673	390	283
Interest income/(expense) on interest rate swaps	0	(0)	0
Interest income on forward and swap transactions in foreign currencies	68	49	20
Interest income on foreign reserve assets (net)	**862**	**534**	**327**

The overall increase in net interest income in 2018 was mainly due to higher interest income generated on the US dollar portfolio.

22.2 Interest income arising from the allocation of euro banknotes within the Eurosystem

This item consists of the interest income relating to the ECB's 8% share of the total euro banknote issue (see "Banknotes in circulation" in the notes on accounting policies and note 5.1, "Claims related to the allocation of euro banknotes within the Eurosystem"). For 2018 this interest income was zero, owing to the fact that the rate on the main refinancing operations remained at 0% during the entire year.

22.3 Remuneration of NCBs' claims in respect of foreign reserves transferred

Remuneration paid to euro area NCBs on their claims in respect of the foreign reserve assets transferred to the ECB (see note 11.1, "Liabilities equivalent to the transfer of foreign reserves") is disclosed under this heading. The remuneration in 2018 was zero, reflecting the fact that the rate on the main refinancing operations was 0% during the entire year.

22.4 Other interest income; and other interest expense

Other interest income and other interest expense in 2018 were as follows:

	2018 € millions	2017 € millions	Change € millions
Net interest income on monetary policy securities	1,235	1,070	164
CBPP1 and CBPP2	31	48	(18)
SMP	384	447	(63)
APP	820	575	245
Net interest income on monetary policy security lending	33	45	(13)
Net interest income on own funds	109	143	(34)
Net interest income on other assets/liabilities	39	19	20
Net other interest income	**1,415**	**1,277**	**138**

The ECB's net interest income on SMP holdings of Greek government bonds amounted to €127 million (2017: €154 million).

23 Realised gains/losses arising from financial operations

Net realised gains/losses arising from financial operations in 2018 were as follows:

	2018 € millions	2017 € millions	Change € millions
Net realised price gains/(losses)	(103)	22	(126)
Net realised exchange rate and gold price gains	26	139	(113)
Net realised gains/(losses) arising from financial operations	**(77)**	**161**	**(238)**

Net realised price gains/losses include realised gains and losses on securities, interest rate futures and interest rate swaps. The net realised price losses in 2018 were mainly due to realised price losses generated in the US dollar portfolio as a result of the higher US dollar interest rate environment.

The sale of a small portion of US dollar holdings to fund the creation of the Chinese renminbi portfolio in 2017 generated a non-recurring realised exchange rate gain in that year. In 2018 no such sale took place, so the net realised exchange rate and gold price gains were lower.

24 Write-downs on financial assets and positions

Write-downs on financial assets and positions in 2018 were as follows:

	2018 € millions	2017 € millions	Change € millions
Unrealised price losses on securities	(64)	(79)	14
Unrealised exchange rate losses	(4)	(27)	22
Total write-downs	**(69)**	**(105)**	**36**

The market value of a number of securities held in the US dollar portfolio further declined in 2018, alongside an increase in the corresponding yields. This resulted in unrealised price losses during the year.

The unrealised exchange rate losses are mainly due to the write-down of the average acquisition cost of the ECB's holding of Chinese renminbi to its 2018 year-end exchange rate owing to the depreciation of this currency against the euro since the end of last year.

25 Net income/expense from fees and commissions

	2018 € millions	2017 € millions	Change € millions
Income from fees and commissions	524	452	72
Expenses relating to fees and commissions	(13)	(12)	(1)
Net income from fees and commissions	**511**	**440**	**71**

In 2018 income under this heading consisted mainly of supervisory fees and administrative penalties imposed on supervised entities for non-compliance with the EU banking regulations on prudential requirements (including ECB supervisory decisions). Expenses consisted mainly of custody fees.

Income and expenses related to supervisory tasks

The ECB levies annual fees on supervised entities in order to recover expenditure incurred in the performance of its supervisory tasks. The ECB announced in April 2018 that the annual supervisory fees in 2018 would amount to €475 million. This figure was based on estimated annual expenses for supervisory tasks of €502 million in 2018, adjusted for (i) surplus supervisory fees of €28 million charged in 2017 and (ii) amounts reimbursed to individual banks for previous fee periods.[45]

Based on the actual expenses incurred by the ECB in the performance of its banking supervisory tasks, the supervisory fee income for 2018 stood at €518 million. The resulting deficit of €15 million arising from the difference between the estimated expenses (€502 million) and the actual expenses (€518 million) for 2018 is shown under the heading "Accruals and prepaid expenses" (see note 6.4, "Accruals and prepaid expenses"). It will be collected in the total amount to be levied in 2019.

45 Based on Article 5(3) of Regulation (EU) No 1163/2014 of the ECB of 22 October 2014 on supervisory fees (ECB/2014/41) (OJ L 311, 31.10.2014, p. 23).

The ECB is also entitled to impose administrative penalties on supervised entities for failure to comply with the EU banking regulations on prudential requirements (including ECB supervisory decisions). The related income is not considered in the calculation of the annual supervisory fees. Instead, it is recorded as income in the ECB's Profit and Loss Account and is distributed to euro area NCBs as part of the ECB's profit distribution regime. In 2018 the income arising from penalties on supervised entities amounted to €6 million.

Thus, the related income of the ECB for supervisory tasks in 2018 was as follows:

	2018 € millions	2017 € millions	Change € millions
Supervisory fees	518	437	81
of which:			
Fees relating to significant entities or significant groups	*473*	*397*	*76*
Fees relating to less significant entities or less significant groups	*45*	*39*	*5*
Imposed administrative penalties	6	15	(9)
Total income related to banking supervision tasks	**524**	**452**	**72**

Banking supervision-related expenses result from the direct supervision of significant entities, the oversight of the supervision of less significant entities and the performance of horizontal tasks and specialised services. They also include expenses arising from support areas, including premises, human resources management, administrative services, budgeting and controlling, accounting, legal, communication and translation services, internal audit, statistical and information technology services needed to fulfil the ECB's supervisory responsibilities.

In 2017, the collection of an amount of €11 million related to administrative penalties imposed by the ECB on a supervised entity was considered uncertain and an allowance for the full amount of this claim was created at the year-end (see note 31, "Other expenses"). The related expense is not considered in the calculation of the annual supervisory fees, but it is recorded in the Profit and Loss Account of the ECB and reduces its net result. All administrative penalties charged to the supervised entities in 2018 were either received during the year or are expected to be collected.

For 2018 the total actual expenses related to the ECB's supervisory tasks are broken down under the following headings:

	2018 € millions	2017 € millions	Change € millions
Salaries and benefits	246	215	31
Rent and building maintenance	59	53	6
Other operating expenditure	213	169	44
Expenses related to banking supervision tasks relevant for supervisory fees	**518**	**437**	**81**
Allowance for doubtful administrative penalties	-	11	(11)
Total expenses related to banking supervision tasks	**518**	**448**	**70**

The higher average number of staff working for ECB Banking Supervision led to an increase in salaries and benefits. The increase in other operating expenditure was mainly due to external consultancy support required for comprehensive assessments and contribution to the EBA stress testing exercise. Information technology related expenses also contributed to the increase due to the higher number and increased complexity of IT systems.

26 Income from equity shares and participating interests

Dividends received on shares which the ECB holds in the BIS (see note 6.2, "Other financial assets") are shown under this heading.

27 Other income

Other miscellaneous income during 2018 mainly arose from the accrued contributions of the euro area NCBs to the costs incurred by the ECB in connection with joint Eurosystem projects.

28 Staff costs

Staff costs were in 2018 as follows:

	2018 € millions	2017 € millions	Change € millions
Salaries and allowances[46]	398	350	47
Staff insurance	19	15	4
Post-employment, other long-term and termination benefits	98	169	(71)
Other staff costs	1	1	(0)
Total	**515**	**535**	**(20)**

The average number of employees, expressed as full-time equivalents (FTEs)[47], amounted to 3,546 (2017: 3,254), of which 337 were managerial staff (2017: 330).

Staff costs decreased in 2018 due to a lower expense in relation to post-employment, other long-term and termination benefits resulting from (i) a non-recurring charge included in 2017 related to the introduction of the temporary CTS scheme, and (ii) the use of a higher discount rate for the calculation of the current service cost for 2018 (see note 12.3, "Sundry"). The resulting decrease was partially

46 Salaries and allowances are modelled in essence on, and are comparable with, the remuneration scheme of the European Union.

47 Full-time equivalent (FTE) is a unit obtained by comparing an employee's number of hours worked to the number of hours of a full-time employee. This number includes staff with permanent, fixed or short-term contracts and participants in the ECB's Graduate Programme. Staff on maternity or long-term leave are also included, while staff on unpaid leave are excluded.

offset by the impact of a higher average number of staff employed by the ECB in 2018.

Remuneration of the Executive and Supervisory Boards

Members of the Executive Board and the members of the Supervisory Board employed by the ECB receive a basic salary and allowances for residence and representation. In the case of the President, an official residence owned by the ECB is provided in lieu of a residence allowance. Subject to the Conditions of Employment for Staff of the European Central Bank, members of both boards may be entitled to household, child and education allowances, depending on their individual circumstances. Salaries are subject to a tax for the benefit of the European Union, as well as to deductions in respect of contributions to the pension, medical and accident insurance schemes. Allowances are non-taxable and non-pensionable.

In 2018 the basic salaries of the members of the Executive Board and members of the Supervisory Board employed by the ECB (i.e. excluding representatives of national supervisors) were as follows:[48]

	2018 €	2017 €
Mario Draghi (President)	401,400	396,900
Vítor Constâncio (Vice-President until May 2018)	143,360	340,200
Luis de Guindos Jurado (Vice-President since June 2018)	200,704	-
Peter Praet (Board Member)	286,704	283,488
Benoît Cœuré (Board Member)	286,704	283,488
Yves Mersch (Board Member)	286,704	283,488
Sabine Lautenschläger (Board Member)	286,704	283,488
Total Executive Board	**1,892,280**	**1,871,052**
Total Supervisory Board (members employed by the ECB)[49]	**793,064**	**793,817**
of which:		
Danièle Nouy (Chair of the Supervisory Board)	*286,704*	*283,488*
Total	**2,685,344**	**2,664,869**

The total allowances paid to members of both boards and the ECB's contributions to medical and accident insurance schemes on their behalf amounted to €835,371 (2017: €852,998).

Pension payments, including post-employment allowances, and contributions to the medical and accident insurance schemes for former board members and their dependants, amounted to €3,216,410 (2017: €857,476).[50] In 2018 this total included

48 Amounts are presented gross, i.e. before any tax deductions for the benefit of the European Union.

49 This total excludes the salary of Sabine Lautenschläger – the Vice-Chair of the Supervisory Board – which is reported with those of the other members of the Executive Board.

50 For the net amount charged to the Profit and Loss Account in relation to the pension arrangements for the current members of the Executive Board and members of the Supervisory Board see note 12.3, "Sundry".

a lump sum payment on retirement to a former board member in lieu of future pension payments.

29 Administrative expenses

This item amounting to €525 million (2017: €463 million) covers all other current expenses relating to consultancy, information technology, the renting and maintenance of premises, goods and equipment of a non-capital nature and other services and supplies, together with staff-related expenses, including training, recruitment, relocation and accommodation expenses.

The increase in 2018 was mainly due to external consultancy support and information technology.

30 Banknote production services

This expense arises predominantly from the cross-border transportation of euro banknotes between banknote printing works and NCBs, for the delivery of new banknotes, and between NCBs, for the compensation of shortages with surplus stocks. These costs are borne centrally by the ECB.

31 Other expenses

In 2017 this item comprised an allowance for administrative penalties imposed by the ECB on a supervised entity where collection was assessed as uncertain. No expenses were recorded under this item in 2018.

Post-balance sheet events

32 Five-yearly adjustment of the ECB's capital key

Pursuant to Article 29 of the Statute of the ESCB, the weightings assigned to NCBs in the key for subscription to the ECB's capital are adjusted every five years.[51] The fourth such adjustment following the establishment of the ECB was made on 1 January 2019, as follows:

[51] These weights are also adjusted whenever there is a change in the number of NCBs that contribute to the ECB's capital. These are the NCBs of EU Member States.

	Capital key since 1 January 2019 %	Capital key as at 31 December 2018 %
Nationale Bank van België/Banque Nationale de Belgique	2.5280	2.4778
Deutsche Bundesbank	18.3670	17.9973
Eesti Pank	0.1968	0.1928
Central Bank of Ireland	1.1754	1.1607
Bank of Greece	1.7292	2.0332
Banco de España	8.3391	8.8409
Banque de France	14.2061	14.1792
Banca d'Italia	11.8023	12.3108
Central Bank of Cyprus	0.1503	0.1513
Latvijas Banka	0.2731	0.2821
Lietuvos bankas	0.4059	0.4132
Banque centrale du Luxembourg	0.2270	0.2030
Central Bank of Malta	0.0732	0.0648
De Nederlandsche Bank	4.0677	4.0035
Oesterreichische Nationalbank	2.0325	1.9631
Banco de Portugal	1.6367	1.7434
Banka Slovenije	0.3361	0.3455
Národná banka Slovenska	0.8004	0.7725
Suomen Pankki – Finlands Bank	1.2708	1.2564
Subtotal for euro area NCBs	**69.6176**	**70.3915**
Българска народна банка (Bulgarian National Bank)	0.8511	0.8590
Česká národní banka	1.6172	1.6075
Danmarks Nationalbank	1.4986	1.4873
Hrvatska narodna banka	0.5673	0.6023
Magyar Nemzeti Bank	1.3348	1.3798
Narodowy Bank Polski	5.2068	5.1230
Banca Naţională a României	2.4470	2.6024
Sveriges Riksbank	2.5222	2.2729
Bank of England	14.3374	13.6743
Subtotal for non-euro area NCBs	**30.3824**	**29.6085**
Total	**100.0000**	**100.0000**

Impact on the ECB's paid-up capital

Due to the overall reduction of 0.7739 percentage points in the weighting of the euro area NCBs (with fully paid-up subscriptions) in the ECB's subscribed capital, and the equivalent increase in that of the non-euro area NCBs (which have only paid up 3.75% of their subscriptions), the ECB's paid-up capital decreased by a total of €81 million on 1 January 2019.

Impact on NCBs' claims equivalent to the foreign reserve assets transferred to the ECB

Pursuant to Article 30.2 of the Statute of the ESCB, the contributions of the NCBs to the transfer of foreign reserve assets to the ECB are fixed in proportion to their share in the ECB's subscribed capital. Given the decrease in the weighting of the euro area NCBs (which have transferred foreign reserve assets to the ECB) in the ECB's subscribed capital, the claim equivalent to this transfer was also adjusted accordingly. This resulted in a reduction of €448 million on 1 January 2019, which was repaid to the euro area NCBs.

33 Additional change to the ECB's capital key

As a result of the expected[52] departure of the United Kingdom from the European Union in 2019 and consequent withdrawal of the Bank of England from the ESCB, the weightings assigned to the remaining NCBs in the key for subscription to the ECB's capital are expected to change again during 2019.

[52] Based on the expectation prevailing on the date on which the Executive Board authorised the submission of the ECB's Annual Accounts 2018 to the Governing Council for approval.

INDEPENDENT AUDITOR'S REPORT

To the President and Governing Council
of the European Central Bank
Frankfurt am Main

Report on the Audit of the financial statements

Opinion

We have audited the financial statements of the European Central Bank (the Entity), which comprise the balance sheet as at 31 December 2018, the profit and loss account and a summary of significant accounting policies and other explanatory notes.

In our opinion, the accompanying financial statements give a true and fair view of the financial position of the Entity as at 31 December 2018, and of the results of its financial operations for the year then ended in accordance the principles established by the Governing Council, which are laid down in Decision (EU) 2016/2247 of the ECB of 3 November 2016 on the annual accounts of the ECB (ECB/2016/35), as amended.

Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Entity in accordance with the German ethical requirements that are relevant to our audit of the financial statements, which are consistent with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants (IESBA Code) and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other Information

The Executive Board is responsible for the other information. The other information comprises the information included in the ECB´s annual report and the management report, but does not include the financial statements of the ECB and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

Responsibilities of the European Central Bank's Executive Board and those charged with Governance for the Financial Statements

The Executive Board is responsible for the preparation and fair presentation of the financial statements in accordance with the principles established by the Governing Council, which are laid down in Decision (EU) 2016/2247 of the ECB of 3 November 2016 on the annual accounts of the ECB (ECB/2016/35), as amended, and for such internal control as the Executive Board determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Executive Board is responsible for assessing the European Central Bank´s ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting.

Those charged with governance are responsible for overseeing the Entity's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs, we exercise professional judgment and maintain professional skepticism throughout the planning and performance of the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Frankfurt am Main, 13 February 2019

Baker Tilly GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft
(Düsseldorf)

Ralph Hüsemann
Wirtschaftsprüfer

Dr. Stefan Wolfgang Fischer
Wirtschaftsprüfer

Note on profit distribution/allocation of losses

This note is not part of the financial statements of the ECB for the year 2018.

Pursuant to Article 33 of the Statute of the ESCB, the net profit of the ECB shall be transferred in the following order:

(a) an amount to be determined by the Governing Council, which may not exceed 20% of the net profit, shall be transferred to the general reserve fund, subject to a limit equal to 100% of the capital; and

(b) the remaining net profit shall be distributed to the shareholders of the ECB in proportion to their paid-up shares.[53]

In the event of a loss incurred by the ECB, the shortfall may be offset against the general reserve fund of the ECB and, if necessary, following a decision by the Governing Council, against the monetary income of the relevant financial year in proportion and up to the amounts allocated to the NCBs in accordance with Article 32.5 of the Statute of the ESCB.[54]

The ECB's net profit for 2018 was €1,575 million. Following a decision by the Governing Council, an interim profit distribution, amounting to €1,191 million, was paid out to the euro area NCBs on 31 January 2019. Furthermore, the Governing Council decided to distribute the remaining profit of €384 million to the euro area NCBs.

	2018 € millions	2017 € millions
Profit for the year	1,575	1,275
Interim profit distribution	(1,191)	(988)
Profit after the interim profit distribution	384	287
Distribution of the remaining profit	(384)	(287)
Total	**0**	**0**

53 Non-euro area NCBs are not entitled to receive any share of the ECB's distributable profits, nor are they liable to cover any loss of the ECB.

54 Under Article 32.5 of the Statute of the ESCB, the sum of the NCBs' monetary income shall be allocated to the NCBs in proportion to their paid-up shares in the capital of the ECB.

Consolidated balance sheet of the Eurosystem as at 31 December 2018[1]

(EUR millions)[2]

	ASSETS	31 December 2018	31 December 2017
1	**Gold and gold receivables**	**389,765**	**376,300**
2	**Claims on non-euro area residents denominated in foreign currency**	**334,253**	**296,201**
2.1	Receivables from the IMF	76,942	70,214
2.2	Balances with banks and security investments, external loans and other external assets	257,311	225,987
3	**Claims on euro area residents denominated in foreign currency**	**20,499**	**38,079**
4	**Claims on non-euro area residents denominated in euro**	**21,278**	**19,364**
4.1	Balances with banks, security investments and loans	21,278	19,364
4.2	Claims arising from the credit facility under ERM II	0	0
5	**Lending to euro area credit institutions related to monetary policy operations denominated in euro**	**734,381**	**764,310**
5.1	Main refinancing operations	9,573	3,372
5.2	Longer-term refinancing operations	723,837	760,639
5.3	Fine-tuning reverse operations	0	0
5.4	Structural reverse operations	0	0
5.5	Marginal lending facility	971	299
5.6	Credits related to margin calls	0	0
6	**Other claims on euro area credit institutions denominated in euro**	**17,634**	**37,563**
7	**Securities of euro area residents denominated in euro**	**2,899,302**	**2,660,726**
7.1	Securities held for monetary policy purposes	2,651,281	2,386,012
7.2	Other securities	248,021	274,714
8	**General government debt denominated in euro**	**23,947**	**25,015**
9	**Other assets**	**261,304**	**250,052**
Total assets		**4,702,363**	**4,467,611**

1 Based on provisional unaudited data. The annual accounts of all the NCBs will be finalised by the end of May 2019 and the final consolidated annual balance sheet of the Eurosystem will be published thereafter.

2 Totals/sub-totals may not add up due to rounding.

LIABILITIES	31 December 2018	31 December 2017
1 Banknotes in circulation	**1,231,134**	**1,170,716**
2 Liabilities to euro area credit institutions related to monetary policy operations denominated in euro	**1,853,802**	**1,881,596**
2.1 Current accounts (covering the minimum reserve system)	1,230,153	1,185,792
2.2 Deposit facility	623,531	695,801
2.3 Fixed-term deposits	0	0
2.4 Fine-tuning reverse operations	0	0
2.5 Deposits related to margin calls	118	2
3 Other liabilities to euro area credit institutions denominated in euro	**19,759**	**20,984**
4 Debt certificates issued	**0**	**0**
5 Liabilities to other euro area residents denominated in euro	**338,633**	**286,371**
5.1 General government	216,035	168,457
5.2 Other liabilities	122,598	117,913
6 Liabilities to non-euro area residents denominated in euro	**459,335**	**355,900**
7 Liabilities to euro area residents denominated in foreign currency	**4,331**	**3,831**
8 Liabilities to non-euro area residents denominated in foreign currency	**11,016**	**11,254**
8.1 Deposits, balances and other liabilities	11,016	11,254
8.2 Liabilities arising from the credit facility under ERM II	0	0
9 Counterpart of special drawing rights allocated by the IMF	**56,510**	**55,218**
10 Other liabilities	**247,378**	**221,212**
11 Revaluation accounts	**376,057**	**357,862**
12 Capital and reserves	**104,407**	**102,667**
Total liabilities	**4,702,363**	**4,467,611**

Statistical section

Further information

ECB statistics:	http://sdw.ecb.europa.eu/
Methodological definitions can be found in the General Notes to the Statistics Bulletin:	http://sdw.ecb.europa.eu/reports.do?node=10000023
Details on calculations can be found in the Technical Notes to the Statistics Bulletin:	http://sdw.ecb.europa.eu/reports.do?node=10000022
Explanations of terms and abbreviations can be found in the ECB's statistics glossary:	http://www.ecb.europa.eu/home/glossary/html/glossa.en.html

Specific methodological note

Multi-annual averages of growth rates are calculated using the geometric mean. For all the other indicators included in this section, the multi-annual averages are computed using the arithmetic mean.

Cut-off date for the Statistical section

The cut-off date for the statistics included in the Statistical section was 14 March 2019.

Conventions used in the table

-	data do not exist/data are not applicable	(p)	provisional
.	data are not yet available	s.a.	seasonally adjusted
...	nil or negligible	n.s.a.	non-seasonally adjusted

1 Financial and monetary developments

1.1 Key ECB interest rates

(levels in percentages per annum; changes in percentage points)

With effect from: [1]	Deposit facility		Main refinancing operations			Marginal lending facility	
			Fixed rate tenders	Variable rate tenders			
			Fixed rate	Minimum bid rate			
	Level	Change	Level	Level	Change	Level	Change
	1	2	3	4	5	6	7
1999 1 Jan.	2.00	-	3.00	-	-	4.50	-
4 Jan. [2]	2.75	0.75	3.00	-	...	3.25	-1.25
22 Jan.	2.00	-0.75	3.00	-	...	4.50	1.25
9 Apr.	1.50	-0.50	2.50	-	-0.50	3.50	-1.00
5 Nov.	2.00	0.50	3.00	-	0.50	4.00	0.50
2000 4 Feb.	2.25	0.25	3.25	-	0.25	4.25	0.25
17 Mar.	2.50	0.25	3.50	-	0.25	4.50	0.25
28 Apr.	2.75	0.25	3.75	-	0.25	4.75	0.25
9 June	3.25	0.50	4.25	-	0.50	5.25	0.50
28 June [3]	3.25	...	-	4.25	...	5.25	...
1 Sep.	3.50	0.25	-	4.50	0.25	5.50	0.25
6 Oct.	3.75	0.25	-	4.75	0.25	5.75	0.25
2001 11 May	3.50	-0.25	-	4.50	-0.25	5.50	-0.25
31 Aug.	3.25	-0.25	-	4.25	-0.25	5.25	-0.25
18 Sep.	2.75	-0.50	-	3.75	-0.50	4.75	-0.50
9 Nov.	2.25	-0.50	-	3.25	-0.50	4.25	-0.50
2002 6 Dec.	1.75	-0.50	-	2.75	-0.50	3.75	-0.50
2003 7 Mar.	1.50	-0.25	-	2.50	-0.25	3.50	-0.25
6 June	1.00	-0.50	-	2.00	-0.50	3.00	-0.50
2005 6 Dec.	1.25	0.25	-	2.25	0.25	3.25	0.25
2006 8 Mar.	1.50	0.25	-	2.50	0.25	3.50	0.25
15 June	1.75	0.25	-	2.75	0.25	3.75	0.25
9 Aug.	2.00	0.25	-	3.00	0.25	4.00	0.25
11 Oct.	2.25	0.25	-	3.25	0.25	4.25	0.25
13 Dec.	2.50	0.25	-	3.50	0.25	4.50	0.25
2007 14 Mar.	2.75	0.25	-	3.75	0.25	4.75	0.25
13 June	3.00	0.25	-	4.00	0.25	5.00	0.25
2008 9 July	3.25	0.25	-	4.25	0.25	5.25	0.25
8 Oct.	2.75	-0.50	-	-	-	4.75	-0.50
9 Oct. [4]	3.25	0.50	-	-	-	4.25	-0.50
15 Oct. [5]	3.25	...	3.75	-	-0.50	4.25	...
12 Nov.	2.75	-0.50	3.25	-	-0.50	3.75	-0.50
10 Dec.	2.00	-0.75	2.50	-	-0.75	3.00	-0.75
2009 21 Jan.	1.00	-1.00	2.00	-	-0.50	3.00	...
11 Mar.	0.50	-0.50	1.50	-	-0.50	2.50	-0.50
8 Apr.	0.25	-0.25	1.25	-	-0.25	2.25	-0.25
13 May	0.25	...	1.00	-	-0.25	1.75	-0.50
2011 13 Apr.	0.50	0.25	1.25	-	0.25	2.00	0.25
13 July	0.75	0.25	1.50	-	0.25	2.25	0.25
9 Nov.	0.50	-0.25	1.25	-	-0.25	2.00	-0.25
14 Dec.	0.25	-0.25	1.00	-	-0.25	1.75	-0.25
2012 11 July	0.00	-0.25	0.75	-	-0.25	1.50	-0.25
2013 8 May	0.00	...	0.50	-	-0.25	1.00	-0.50
13 Nov.	0.00	...	0.25	-	-0.25	0.75	-0.25
2014 11 June	-0.10	-0.10	0.15	-	-0.10	0.40	-0.35
10 Sep.	-0.20	-0.10	0.05	-	-0.10	0.30	-0.10
2015 9 Dec.	-0.30	-0.10	0.05	-	...	0.30	...
2016 16 Mar.	-0.40	-0.10	0.00	-	-0.05	0.25	-0.05

Source: ECB.

1) From 1 January 1999 to 9 March 2004, the date refers to the deposit and marginal lending facilities. For main refinancing operations, changes in the rate are effective from the first operation following the date indicated. The change on 18 September 2001 was effective on that same day. From 10 March 2004 the date refers both to the deposit and marginal lending facilities, and to the main refinancing operations (with changes effective from the first main refinancing operation following the Governing Council decision), unless otherwise indicated.

2) On 22 December 1998 the ECB announced that, as an exceptional measure between 4 and 21 January 1999, a narrow corridor of 50 basis points would be applied between the interest rates for the marginal lending facility and the deposit facility, aimed at facilitating the transition to the new monetary regime by market participants.

3) On 8 June 2000 the ECB announced that, starting from the operation to be settled on 28 June 2000, the main refinancing operations of the Eurosystem would be conducted as variable rate tenders. The minimum bid rate refers to the minimum interest rate at which counterparties may place their bids.

4) As of 9 October 2008 the ECB reduced the standing facilities corridor from 200 basis points to 100 basis points around the interest rate on the main refinancing operations. The standing facilities corridor was restored to 200 basis points as of 21 January 2009.

5) On 8 October 2008 the ECB announced that, starting from the operation to be settled on 15 October, the weekly main refinancing operations would be carried out through a fixed rate tender procedure with full allotment at the interest rate on the main refinancing operations. This change overrode the previous decision (made on the same day) to cut by 50 basis points the minimum bid rate on the main refinancing operations conducted as variable rate tenders.

1 Financial and monetary developments

1.2 Eurosystem monetary policy operations allotted through tender procedures

(EUR millions; interest rates in percentages per annum)

1.2.1 Main and longer-term refinancing operations [1), 2), 3)]

Date of settlement	Bids (amount)	Number of participants	Allotment (amount)	Fixed rate tender procedures	Variable rate tender procedures			Running for (...) days
				Fixed rate	Minimum bid rate	Marginal rate [4)]	Weighted average rate	
	1	2	3	4	5	6	7	8
Main refinancing operations								
2018 17 Oct.	7,860	42	7,860	0.00	-	-	-	7
24 Oct.	7,683	45	7,683	0.00	-	-	-	7
31 Oct.	8,007	42	8,007	0.00	-	-	-	7
7 Nov.	6,551	42	6,551	0.00	-	-	-	7
14 Nov.	6,736	43	6,736	0.00	-	-	-	7
21 Nov.	6,352	45	6,352	0.00	-	-	-	7
28 Nov.	6,535	41	6,535	0.00	-	-	-	7
5 Dec.	6,599	44	6,599	0.00	-	-	-	7
12 Dec.	7,097	46	7,097	0.00	-	-	-	7
19 Dec.	9,573	48	9,573	0.00	-	-	-	14
Longer-term refinancing operations [5), 6)]								
2018 29 Mar.	2,359	20	2,359	0.00	-	-	-	91
26 Apr.	2,281	14	2,281	0.00	-	-	-	91
31 May	2,887	17	2,887	0.00	-	-	-	91
28 June	2,266	19	2,266	0.00	-	-	-	91
26 July	797	13	797	0.00	-	-	-	98
30 Aug.	1,454	16	1,454	0.00	-	-	-	91
27 Sep.	1,261	20	1,261	0.00	-	-	-	84
1 Nov.	1,490	16	1,490	0.00	-	-	-	91
29 Nov.	1,946	18	1,946	0.00	-	-	-	91
20 Dec. [7)]	1,554	18	1,554	.	-	-	-	98

Source: ECB.

1) Only the last ten operations of 2018 are displayed in each category.

2) With effect from April 2002, split tender operations (i.e. operations with a one-week maturity conducted as standard tender procedures in parallel with a main refinancing operation) are classified as main refinancing operations.

3) On 8 June 2000 the ECB announced that, starting from the operation to be settled on 28 June 2000, the main refinancing operations of the Eurosystem would be conducted as variable rate tender procedures. The minimum bid rate refers to the minimum interest rate at which counterparties may place their bids. On 8 October 2008 the ECB announced that, starting from the operation to be settled on 15 October 2008, the weekly main refinancing operations would be carried out through a fixed rate tender procedure with full allotment at the interest rate on the main refinancing operations. On 4 March 2010 the ECB decided to return to variable rate tender procedures in the regular three-month longer-term refinancing operations, starting with the operation to be allotted on 28 April 2010 and settled on 29 April 2010.

4) In liquidity-providing (absorbing) operations, the marginal rate refers to the lowest (highest) rate at which bids were accepted.

5) For the operations settled on 22 December 2011 and 1 March 2012, after one year counterparties have the option to repay any part of the liquidity that they have been allotted in these operations, on any day that coincides with the settlement day of a main refinancing operation.

6) Targeted longer-term refinancing operation. Further information can be found in the "Monetary Policy" section of the ECB's website (https://www.ecb.europa.eu) under "Instruments" then "Open market operations".

7) In this longer-term refinancing operation, the rate at which all bids are satisfied is indexed to the average minimum bid rate in the main refinancing operations over the life of the operation. The interest rates displayed for these indexed longer-term refinancing operations have been rounded to two decimal places. For the precise calculation method, please refer to the Technical Notes.

1.2.2 Other tender operations [1)]

Date of settlement	Type of operation	Bids (amount)	Number of participants	Allotment (amount)	Fixed rate tender procedures	Variable rate tender procedures				Running for (...) days
					Fixed rate	Minimum bid rate	Maximum bid rate	Marginal rate [2)]	Weighted average rate	
	1	2	3	4	5	6	7	8	9	10
2014 9 Apr.	Collection of fixed-term deposits	192,515	156	172,500	-	-	0.25	0.24	0.22	7
16 Apr.	Collection of fixed-term deposits	153,364	139	153,364	-	-	0.25	0.25	0.23	7
23 Apr.	Collection of fixed-term deposits	166,780	139	166,780	-	-	0.25	0.25	0.23	7
30 Apr.	Collection of fixed-term deposits	103,946	121	103,946	-	-	0.25	0.25	0.24	7
7 May	Collection of fixed-term deposits	165,533	158	165,533	-	-	0.25	0.25	0.23	7
14 May	Collection of fixed-term deposits	144,281	141	144,281	-	-	0.25	0.25	0.24	7
21 May	Collection of fixed-term deposits	137,465	148	137,465	-	-	0.25	0.25	0.24	7
28 May	Collection of fixed-term deposits	102,878	119	102,878	-	-	0.25	0.25	0.25	7
4 June	Collection of fixed-term deposits	119,200	140	119,200	-	-	0.25	0.25	0.24	7
11 June	Collection of fixed-term deposits	108,650	122	108,650	-	-	0.15	0.15	0.13	7

Source: ECB.

1) Only the last ten operations of 2018 are displayed in each category.

2) In liquidity-providing (absorbing) operations, the marginal rate refers to the lowest (highest) rate at which bids were accepted.

1 Financial and monetary developments

1.3 Long-term government bond yields [1)]

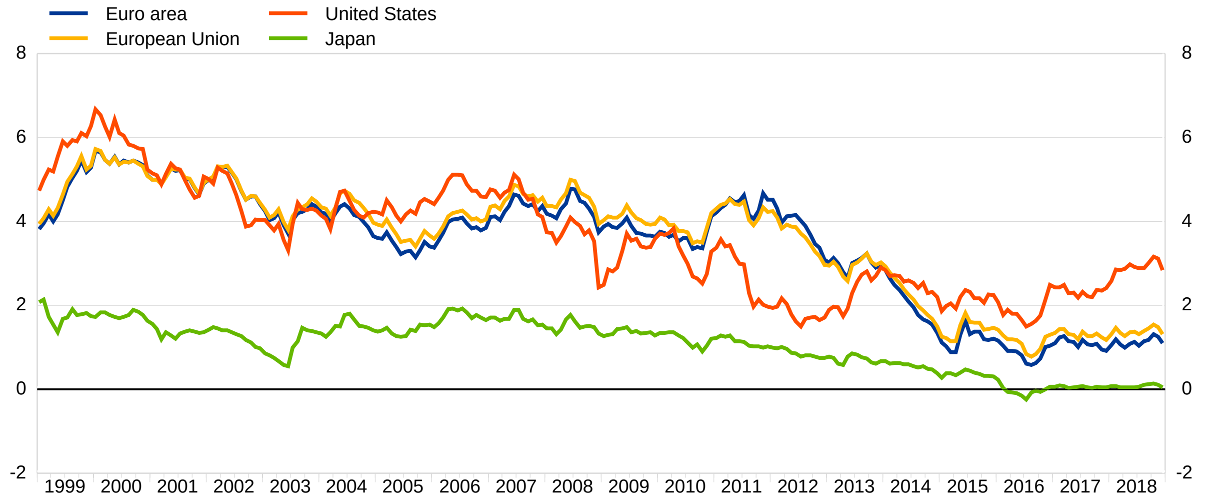
(percentages per annum; period averages)

	1999-2018 [2)]	1999-2008 [2)]	2009-2018	2015	2016	2017	2018
Belgium	3.3	4.5	2.2	0.8	0.5	0.7	0.8
Germany	2.8	4.3	1.4	0.5	0.1	0.3	0.4
Estonia [3)]	.	.	.	.	.	.	.
Ireland	4.0	4.4	3.7	1.2	0.7	0.8	1.0
Greece	7.3	4.8	9.8	9.7	8.4	6.0	4.2
Spain	3.9	4.4	3.3	1.7	1.4	1.6	1.4
France	3.2	4.4	1.9	0.8	0.5	0.8	0.8
Italy	4.0	4.6	3.4	1.7	1.5	2.1	2.6
Cyprus	5.0	5.3	4.8	4.5	3.8	2.6	2.2
Latvia	4.7	5.3	4.2	1.0	0.5	0.8	0.9
Lithuania	4.5	5.2	3.9	1.4	0.9	0.3	0.3
Luxembourg	2.9	4.1	1.7	0.4	0.3	0.5	0.6
Malta	3.8	5.0	2.8	1.5	0.9	1.3	1.4
Netherlands	3.0	4.4	1.7	0.7	0.3	0.5	0.6
Austria	3.2	4.4	1.9	0.7	0.4	0.6	0.7
Portugal	4.8	4.5	5.1	2.4	3.2	3.1	1.8
Slovenia	4.0	5.1	3.3	1.7	1.1	1.0	0.9
Slovakia	3.8	5.3	2.6	0.9	0.5	0.9	0.9
Finland	3.1	4.4	1.7	0.7	0.4	0.5	0.7
Euro area	3.5	4.4	2.5	1.2	0.9	1.1	1.1
Bulgaria	4.2	5.0	3.7	2.5	2.3	1.6	0.9
Czech Republic	3.3	4.6	2.3	0.6	0.4	1.0	2.0
Denmark	3.0	4.5	1.6	0.7	0.3	0.5	0.5
Croatia	4.8	5.1	4.7	3.6	3.5	2.8	2.2
Hungary	6.3	7.3	5.5	3.4	3.1	3.0	3.1
Poland	5.3	6.6	4.3	2.7	3.0	3.4	3.2
Romania	6.1	7.3	5.6	3.5	3.3	4.0	4.7
Sweden	3.1	4.5	1.7	0.7	0.5	0.7	0.7
United Kingdom	3.5	4.8	2.1	1.8	1.2	1.2	1.4
European Union	3.6	4.6	2.6	1.4	1.1	1.3	1.4
United States	3.6	4.7	2.5	2.1	1.8	2.3	2.9
Japan	1.1	1.5	0.6	0.4	0.0	0.1	0.1

Source: ECB calculations based on daily data from national central banks. Thomson Reuters data for the United States and Japan.
1) Further information can be found on the ECB's website (https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/long_term_interest_rates/html/index.en.html).
2) Data for Cyprus, Latvia, Lithuania, Malta, Slovenia, Slovakia, Czech Republic, Hungary and Poland available since January 2001. Data for Bulgaria available since January 2003; for Romania since April 2005; and for Croatia since December 2005.
3) There are no Estonian sovereign debt securities that comply with the definition of long-term interest rates for convergence purposes. No suitable proxy indicator has been identified.

Chart 1.3 Long-term government bond yields [1), 2)]

(percentages per annum; monthly averages)



Source: ECB calculations based on daily data from national central banks. Thomson Reuters data for the United States and Japan.
1) Further information can be found on the ECB's website (https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/long_term_interest_rates/html/index.en.html).
2) Data for Cyprus, Latvia, Lithuania, Malta, Slovenia, Slovakia, Czech Republic, Hungary and Poland available since January 2001. Data for Bulgaria available since January 2003; for Romania since April 2005; and for Croatia since December 2005.

1 Financial and monetary developments

1.4 Selected stock market indices

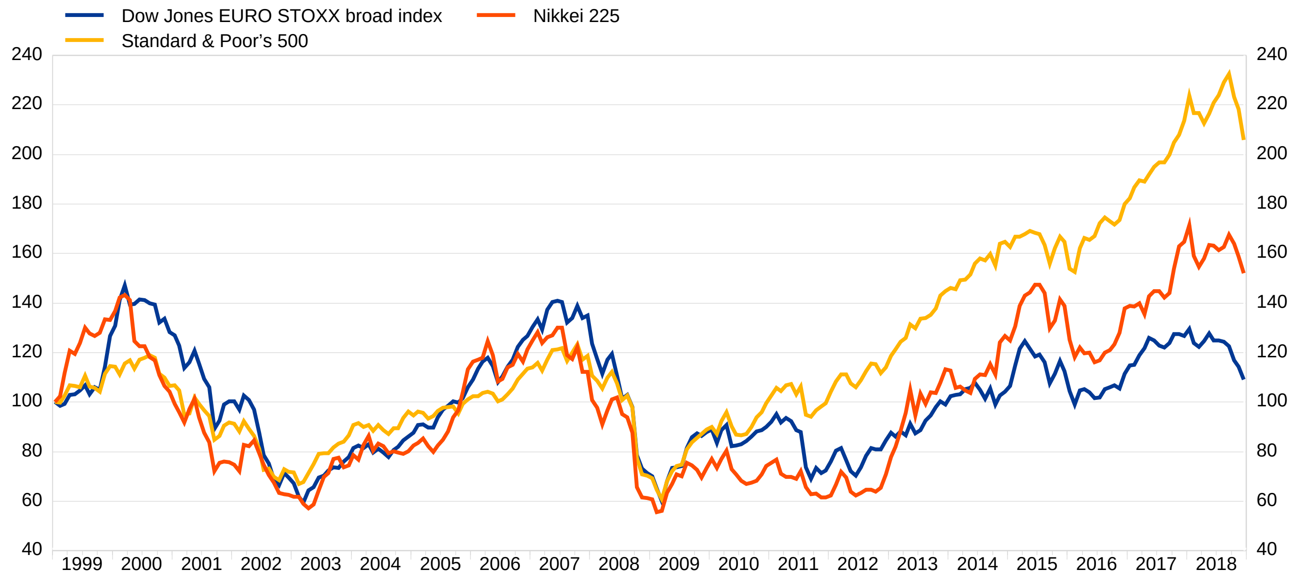
(percentage changes)

	1999-2018 [1)]	1999-2008 [1)]	2009-2018	2015	2016	2017	2018
Belgium - BEL 20 Index	-2.9	-42.9	29.1	12.6	-2.5	10.3	-18.5
Germany - DAX 30 Index	51.7	-30.9	77.2	9.6	6.9	12.5	-18.3
Estonia - OMXT Index	826.5	119.0	187.4	19.1	19.6	15.5	-6.4
Ireland - ISEQ Index	9.2	-53.3	84.2	30.0	-4.0	8.0	-22.1
Greece - ASE Index	-89.3	-68.7	-72.1	-23.6	1.9	24.7	-23.6
Spain - IBEX 35 Index	-26.6	-21.0	-28.5	-7.2	-2.0	7.4	-15.0
France - CAC 40 Index	-20.6	-46.0	20.2	8.5	4.9	9.3	-11.0
Italy - FTSEMIB Index	-57.0	-54.3	-21.2	12.7	-10.2	13.6	-16.1
Cyprus - CSE Index	-93.4	9.4	-95.8	-20.9	-2.0	4.7	-3.9
Latvia - OMXR Index	496.4	74.1	233.1	45.7	23.5	35.8	-6.7
Lithuania - OMXV Index	516.9	79.3	135.7	7.4	14.9	17.0	-5.6
Luxembourg - LuxX Index	-5.7	-29.8	-4.0	-8.5	20.0	-1.8	-19.6
Malta - MSE Index	31.1	-6.8	30.5	33.0	4.5	-2.6	0.1
Netherlands - AEX Index	-27.3	-63.4	45.5	4.1	9.4	12.7	-10.4
Austria - ATX Index	129.2	46.2	10.0	11.0	9.2	30.6	-19.7
Portugal - PSI 20 Index	-60.4	-47.0	-44.1	10.7	-11.9	15.2	-12.2
Slovenia - SBITOP Index	-45.4	-42.0	-18.2	-11.2	3.1	12.4	-0.3
Slovakia - SAX Index	331.3	366.0	24.5	31.5	9.0	2.2	2.1
Finland - OMXH Index	-40.3	-62.9	34.9	10.8	3.6	6.4	-8.0
Euro area - DJ EURO STOXX Broad Index	-21.1	-46.5	19.6	8.0	1.5	10.1	-14.8
Bulgaria - SOFIX Index	457.0	236.0	39.1	-11.7	27.2	15.5	-12.3
Czech Republic - PX 50 Index	101.5	75.3	-11.7	1.0	-3.6	17.0	-8.5
Denmark - OMXC 20 Index	248.7	-3.1	164.8	36.2	-12.8	15.9	-13.0
Croatia - CROBEX Index	49.1	46.9	-12.7	-3.2	18.1	-7.6	-5.1
Hungary - BUX Index	343.8	38.8	84.4	43.8	33.8	23.0	-0.6
Poland - WIG Index	219.0	50.6	44.3	-9.6	11.4	23.2	-9.5
Romania - BET Index	1,546.2	546.8	57.4	-1.1	1.2	9.4	-4.8
Sweden - OMXS 30 Index	17.5	-44.8	48.0	-1.2	4.9	3.9	-10.7
United Kingdom - FTSE 100 Index	-2.9	-36.0	24.3	-4.9	14.4	7.6	-12.5
United States - S&P 500 Index	70.6	-38.5	124.8	-0.7	9.5	19.4	-6.2
Japan - Nikkei 225 Index	5.7	-53.2	89.8	9.1	0.4	19.1	-12.1

Source: ECB calculations based on Thomson Reuters Datastream and Bloomberg daily data.
1) Data for Latvia and Bulgaria available since 2000; for Croatia since 2002; for Cyprus since 2004; and for Slovenia since 2007.

Chart 1.4 Dow Jones EURO STOXX broad index, Standard & Poor's 500 and Nikkei 225

(index: January 1999 = 100; monthly averages)



Source: ECB calculations based on Thomson Reuters Datastream and Bloomberg daily data.

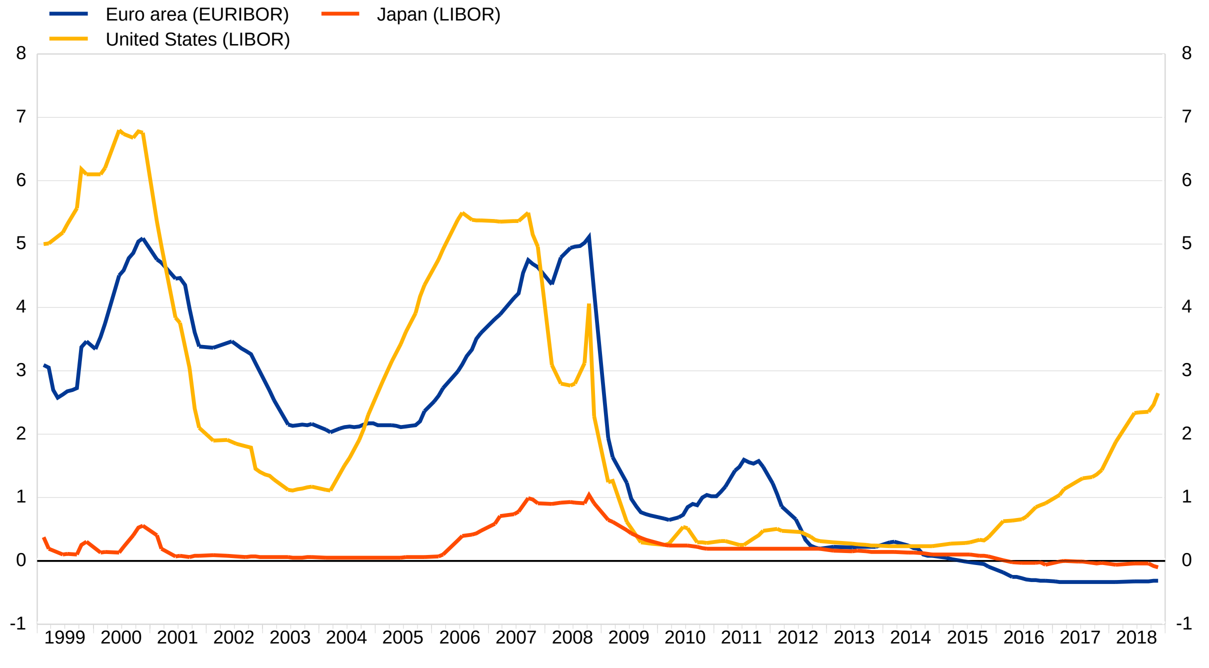
1 Financial and monetary developments

1.5 Money markets: 3-month interbank offered rates [1)]
(percentages per annum; period averages)

	1999-2018 [2)]	1999-2008 [2)]	2009-2018	2015	2016	2017	2018
Euro area - EURIBOR	1.85	3.35	0.35	-0.02	-0.26	-0.33	-0.32
Bulgaria - SOFIBOR [3)]	2.87	4.57	1.95	0.54	0.15	0.09	-0.01
Czech Republic - PRIBOR	2.34	3.70	0.84	0.31	0.29	0.41	0.76
Denmark - CIBOR	2.10	3.64	0.55	-0.12	-0.15	-0.26	-0.30
Croatia - ZIBOR	4.96	7.54	2.36	1.23	0.85	0.60	0.50
Hungary - BUBOR	6.70	9.70	3.70	1.61	0.99	0.15	0.12
Poland - WIBOR	6.07	9.11	3.03	1.75	1.70	1.73	1.71
Romania - ROBOR	14.08	24.65	4.26	1.33	0.78	1.15	2.79
Sweden - STIBOR	2.05	3.44	0.66	-0.19	-0.49	-0.50	-0.40
United Kingdom - LIBOR	1.84	3.35	0.31	-0.02	-0.28	-0.37	-0.36
United States - LIBOR	2.21	3.73	0.69	0.32	0.74	1.26	2.31
Japan - LIBOR	0.21	0.29	0.14	0.09	-0.02	-0.02	-0.05

Source: ECB calculations based on Thomson Reuters and Thomson Reuters Datastream daily data.
1) Interbank offered rates for the currency of each reference area.
2) Data for Bulgaria available since 2003.
3) Data up to June 2018 are for the SOFIBOR reference rate. Effective as of 1 July 2018 the Bulgarian National Bank discontinued the activities relating to the calculation and publication of the SOFIBOR reference rate.

Chart 1.5 Money markets: 3-month interbank offered rates
(percentages per annum; monthly averages)



Source: ECB calculation based on Thomson Reuters daily data.

1 Financial and monetary developments

1.6 Composite cost of borrowing
(percentages per annum; new business; period averages)

1.6.1 Non-financial corporations [1)]

	2003-2018 [3)]	2003-2008 [3)]	2009-2018 [3)]	2015	2016	2017	2018
Belgium	2.95	4.24	2.17	1.98	1.76	1.69	1.61
Germany	3.38	4.75	2.56	2.09	1.88	1.74	1.63
Estonia	3.99	5.44	3.41	2.51	2.49	2.57	2.62
Ireland	3.99	5.10	3.33	3.02	2.80	2.82	2.81
Greece	5.54	5.78	5.39	5.13	4.92	4.51	4.11
Spain	3.36	4.21	2.85	2.61	2.12	1.89	1.80
France	2.90	4.11	2.17	1.74	1.60	1.52	1.48
Italy	3.73	4.90	3.03	2.67	2.15	1.87	1.78
Cyprus	5.60	6.76	5.48	4.78	4.18	3.89	3.52
Latvia	3.12	-	3.12	3.33	2.87	2.85	3.01
Lithuania	2.43	-	2.43	2.50	2.32	2.30	2.59
Luxembourg	2.69	4.03	1.89	1.56	1.34	1.35	1.39
Malta	4.43	6.12	4.26	3.94	3.50	3.66	3.78
Netherlands	2.99	4.30	2.20	1.87	1.52	1.47	1.32
Austria	2.89	4.26	2.07	1.82	1.71	1.56	1.50
Portugal	4.80	5.34	4.48	3.96	3.28	2.81	2.48
Slovenia	4.14	4.36	4.01	3.12	2.43	2.36	2.19
Slovakia	3.00	5.60	2.74	2.41	2.24	2.15	2.24
Finland	2.81	4.05	2.06	1.85	1.71	1.71	1.78
Euro area [2)]	3.33	4.51	2.62	2.25	1.92	1.76	1.67

Source: ECB MFI interest rate statistics.

1) The composite cost of borrowing indicator for non-financial corporations combines interest rates on all loans to corporations, including overdrafts. This indicator is derived from the MFI interest rate statistics.

2) Data refer to the changing composition of the euro area.

3) Data for Estonia available since 2005; for Cyprus, Malta and Slovakia since 2008; for Latvia since 2014; for Lithuania since 2015.

1.6.2 Households for house purchase [1)]

	2003-2018 [3)]	2003-2008 [3)]	2009-2018 [3)]	2015	2016	2017	2018
Belgium	3.55	4.38	3.05	2.49	2.11	2.09	1.91
Germany	3.53	4.81	2.76	1.96	1.76	1.83	1.87
Estonia	3.39	4.72	2.85	2.30	2.32	2.38	2.48
Ireland	3.59	4.13	3.27	3.41	3.25	3.18	3.01
Greece	3.74	4.53	3.26	2.63	2.69	2.78	2.99
Spain	3.20	4.16	2.63	2.23	1.94	1.90	1.94
France	3.41	4.25	2.91	2.31	1.87	1.60	1.55
Italy	3.55	4.49	3.00	2.51	2.13	2.05	1.86
Cyprus	4.30	5.79	4.15	3.63	3.08	2.77	2.39
Latvia	2.94	-	2.94	3.08	2.88	2.68	2.75
Lithuania	2.07	-	2.07	1.88	1.94	2.09	2.38
Luxembourg	2.79	4.02	2.05	1.86	1.68	1.74	1.75
Malta	3.26	4.98	3.08	2.79	2.81	2.82	2.68
Netherlands	3.94	4.54	3.58	2.91	2.58	2.41	2.41
Austria	3.12	4.28	2.42	2.01	1.90	1.85	1.79
Portugal	3.24	4.17	2.67	2.38	1.90	1.64	1.41
Slovenia	4.01	5.55	3.08	2.53	2.20	2.34	2.42
Slovakia	3.86	6.12	3.63	2.74	2.04	1.82	1.55
Finland	2.51	3.85	1.71	1.36	1.16	1.03	0.90
Euro area [2)]	3.44	4.42	2.84	2.26	1.97	1.86	1.82

Source: ECB MFI interest rate statistics.

1) The cost of borrowing indicator for new loans to households combines interest rates on loans to households for house purchase. This indicator is derived from the MFI interest rate statistics.

2) Data refer to the changing composition of the euro area.

3) Data for Estonia available since 2005; for Cyprus, Malta and Slovakia since 2008; for Latvia since 2014; for Lithuania since 2015.

1 Financial and monetary developments

1.7 Aggregated deposit rate
(percentages per annum; period averages)

1.7.1 Non-financial corporations 1)

	2003-2018 3)	2003-2008 3)	2009-2018 3)	2015	2016	2017	2018
Belgium	1.32	2.79	0.34	0.15	-0.04	-0.12	-0.17
Germany	1.39	2.86	0.41	0.16	0.02	-0.04	-0.04
Estonia	1.46	2.75	0.60	0.23	0.17	0.13	0.43
Ireland	1.56	2.75	0.77	0.15	0.05	0.01	0.00
Greece	-	-	-	-	-	-	0.90
Spain	1.88	2.90	1.20	0.36	0.21	0.21	0.27
France	1.65	2.89	0.83	0.31	0.21	0.13	0.13
Italy	1.90	2.88	1.25	0.87	1.04	0.64	0.46
Cyprus	2.81	4.83	2.59	1.72	1.41	1.38	0.76
Latvia	-	-	-	-	-	-	0.14
Lithuania	1.33	2.70	0.57	0.17	0.19	0.16	0.17
Luxembourg	-	-	-	-	-	-	-0.14
Malta	-	-	-	-	-	-	0.57
Netherlands	0.31	-	0.31	0.04	-0.03	-0.20	-0.20
Austria	1.57	2.92	0.67	0.32	0.26	0.14	0.16
Portugal	1.98	2.97	1.32	0.46	0.25	0.23	0.13
Slovenia	1.73	2.75	1.16	0.27	0.11	0.08	0.06
Slovakia	1.26	4.63	0.51	0.24	0.17	0.12	0.12
Finland	1.40	2.80	0.47	0.30	0.39	0.23	0.22
Euro area (2)	1.62	2.86	0.79	0.32	0.18	0.11	0.10

Source: ECB MFI interest rate statistics.
Note: Data on deposit interest rates for Greece, Latvia, Luxembourg and Malta are available, but are being treated as confidential under ECB rules.
1) New deposits with agreed maturity excluding overnight deposits and deposits redeemable at notice.
2) Data refer to the changing composition of the euro area.
3) Data for Estonia and Slovenia available since 2005; for Cyprus and Slovakia since 2008; for the Netherlands since 2010; for Lithuania since 2015.

1.7.2 Households 1)

	2003-2018 3)	2003-2008 3)	2009-2018 3)	2015	2016	2017	2018
Belgium	1.66	2.75	1.01	1.00	0.65	0.42	0.37
Germany	1.61	2.80	0.89	0.47	0.42	0.28	0.34
Estonia	1.57	2.75	0.86	0.58	0.54	0.63	0.68
Ireland	1.58	2.64	0.95	0.29	0.16	0.09	0.05
Greece	-	-	-	-	-	-	0.59
Spain	1.95	2.89	1.39	0.46	0.21	0.10	0.06
France	2.21	2.89	1.79	1.68	1.24	0.96	0.88
Italy	1.74	2.07	1.54	1.20	1.08	0.86	0.71
Cyprus	3.08	6.01	2.79	1.77	1.53	1.33	0.87
Latvia	1.76	3.03	1.13	0.56	0.56	0.61	0.82
Lithuania	1.60	3.07	0.87	0.28	0.24	0.29	0.31
Luxembourg	-	-	-	0.38	-	-	0.20
Malta	1.97	3.92	1.78	1.34	1.17	0.82	0.83
Netherlands	2.22	2.50	2.16	1.91	1.64	1.44	1.40
Austria	1.68	2.89	0.95	0.45	0.37	0.31	0.29
Portugal	2.00	2.67	1.59	0.75	0.39	0.28	0.17
Slovenia	1.89	2.90	1.49	0.58	0.33	0.24	0.27
Slovakia	1.97	3.69	1.63	1.68	1.13	0.70	0.88
Finland	1.82	2.97	1.13	0.96	0.56	0.40	0.28
Euro area (2)	2.00	2.81	1.52	0.81	0.56	0.40	0.35

Source: ECB MFI interest rate statistics.
Note: Data on deposit interest rates for Greece and Luxembourg are available, but are being treated as confidential under ECB rules.
1) New deposits with agreed maturity excluding overnight deposits and deposits redeemable at notice.
2) Data refer to the changing composition of the euro area.
3) Data for Estonia and Slovenia available since 2005; for Cyprus and Slovakia since 2008; for the Netherlands since 2010; for Lithuania since 2015.

1 Financial and monetary developments

1.8 Debt securities issued by euro area residents in all currencies

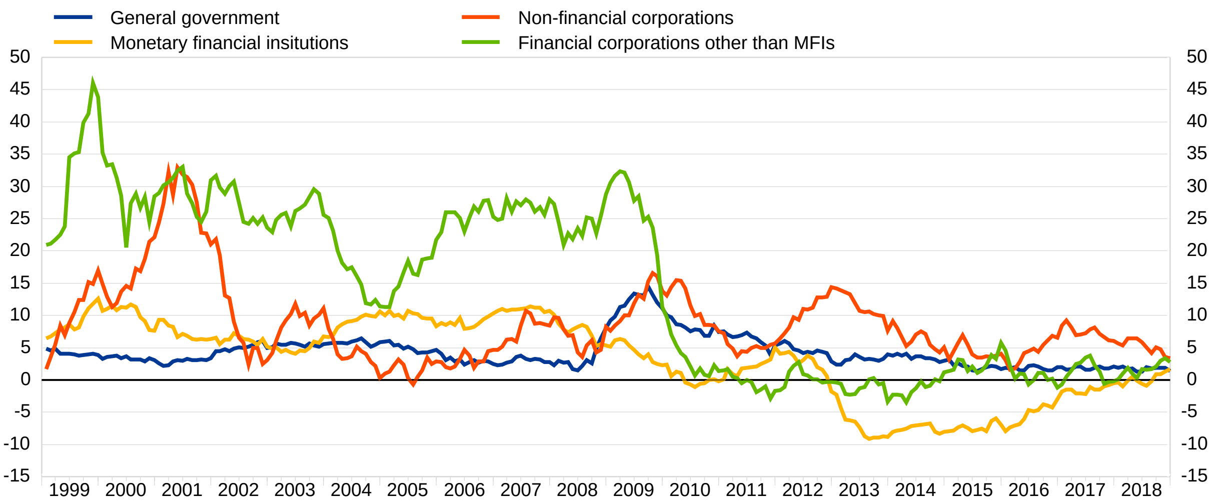
(annual percentage changes; period averages)

	1999-2018	1999-2008	2009-2018	2015	2016	2017	2018
Belgium	3.2	2.6	2.6	1.3	4.2	4.7	-1.1
Germany	1.9	4.8	-0.9	-0.6	-1.3	0.3	-0.1
Estonia	-	-	7.3	-0.5	2.4	4.6	14.8
Ireland	4.9	9.9	-1.0	0.8	-1.4	2.7	0.4
Greece	1.9	12.6	-8.9	-4.2	-28.3	-20.3	5.6
Spain	7.8	15.6	-0.1	-4.5	-0.7	0.8	2.5
France	5.9	8.4	3.2	0.7	1.4	3.2	3.5
Italy	3.7	6.4	0.6	-3.7	-2.2	0.1	0.3
Cyprus	-	-	7.2	-2.9	4.7	35.6	27.7
Latvia	-	-	17.7	10.3	12.2	9.7	0.6
Lithuania	-	-	2.2	-	6.7	8.7	1.2
Luxembourg	5.7	0.2	10.3	16.6	2.3	0.8	2.2
Malta	-	-	8.2	13.1	11.1	4.7	3.5
Netherlands	6.4	12.5	0.7	1.3	0.6	0.4	1.7
Austria	4.1	9.6	-1.1	-3.3	-0.8	-2.5	-1.0
Portugal	6.3	10.4	0.6	-6.7	0.9	1.6	1.9
Slovenia	-	-	6.9	3.6	1.6	2.1	-1.1
Slovakia	11.1	13.7	8.4	1.6	3.1	4.5	7.0
Finland	4.9	3.6	5.5	-0.9	1.3	2.6	4.9
Euro area	4.6	7.7	1.1	-0.5	-0.2	1.2	1.6

Source: ECB.

Chart 1.8 Debt securities issued by euro area residents, by sector

(annual percentage changes)



Source: ECB.

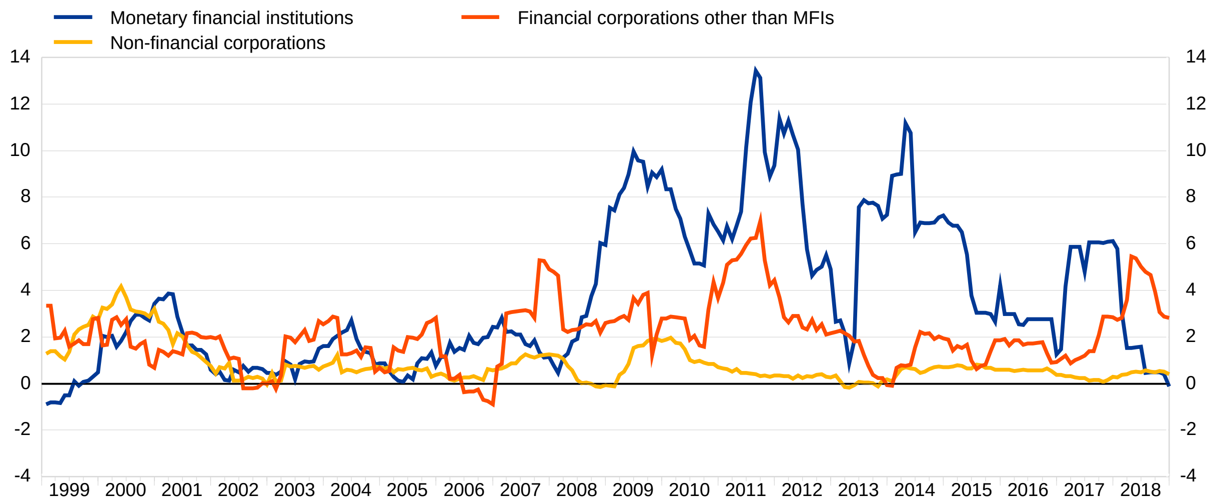
1 Financial and monetary developments

1.9 Listed shares issued by euro area residents
(annual percentage changes; period averages)

	1999-2018	1999-2008	2009-2018	2015	2016	2017	2018
Belgium	0.3	0.1	0.5	1.0	1.1	0.6	0.8
Germany	1.2	1.4	0.9	0.9	0.3	0.5	1.0
Estonia	-	-	-5.1	-4.8	-4.0	-2.2	3.3
Ireland	2.2	1.0	0.3	0.2	-0.1	-2.3	0.5
Greece	7.6	1.5	14.4	6.2	40.9	0.3	0.5
Spain	1.2	1.1	1.2	2.5	1.1	1.7	1.0
France	0.8	0.7	0.7	0.8	0.5	0.7	0.7
Italy	1.6	1.1	1.8	1.8	1.4	3.1	0.9
Cyprus	-	-	15.6	23.1	9.2	23.3	15.1
Latvia	-	-	3.5	0.6	1.7	2.5	29.4
Lithuania	-	-	-0.1	-	0.3	-0.2	1.0
Luxembourg	7.1	5.7	9.3	6.9	11.5	5.5	23.5
Malta	-	-	8.5	8.0	6.0	38.5	11.4
Netherlands	0.3	0.3	0.2	0.1	0.7	0.5	-0.1
Austria	5.2	8.7	2.2	2.3	0.4	1.7	3.2
Portugal	2.0	2.3	1.6	3.6	0.5	2.7	0.6
Slovenia	-	-	0.7	0.5	0.0	0.0	0.0
Slovakia	-	-	0.4	-0.1	-0.2	0.0	0.0
Finland	0.1	-0.5	0.9	0.9	0.8	0.6	-0.1
Euro area	1.2	1.1	1.1	1.2	0.9	0.8	1.1

Source: ECB.

Chart 1.9 Listed shares issued by euro area residents, by sector
(annual percentage changes)



Source: ECB.

1 Financial and monetary developments

1.10 Monetary aggregates, components and counterparts [1)]

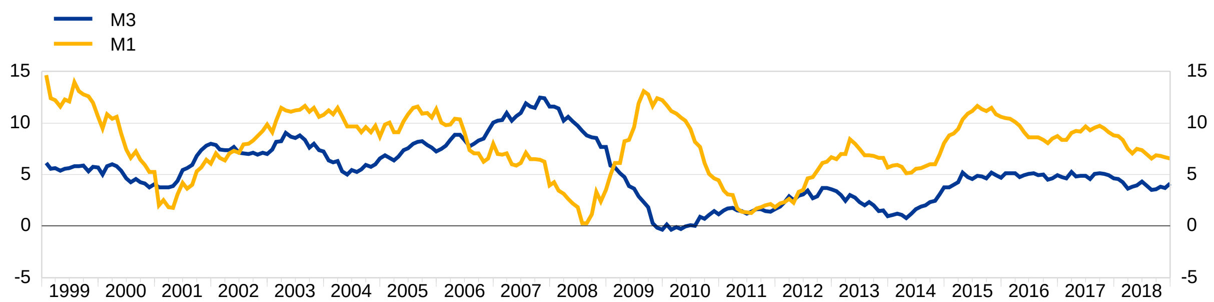
(annual percentage changes at the end of each year; period averages; seasonally adjusted)

	1999-2018	1999-2008	2009-2018	2015	2016	2017	2018
Components of M3							
M3	5.2	7.5	2.9	4.7	5.0	4.7	4.1
M2	5.4	7.3	3.6	5.3	4.8	5.2	4.3
M1	7.6	7.8	7.3	10.6	8.8	8.8	6.6
Currency in circulation	7.0	9.0	5.0	6.9	3.7	3.4	4.5
Overnight deposits	7.7	7.6	7.8	11.3	9.7	9.8	6.9
M2-M1 (other short-term deposits)	2.5	7.1	-1.9	-3.2	-2.5	-2.1	-0.8
Deposits with an agreed maturity of up to two years	1.0	10.3	-7.5	-8.4	-7.4	-8.4	-6.0
Deposits redeemable at notice of up to three months	3.4	3.3	3.5	0.6	0.7	1.5	2.0
M3-M2 (marketable instruments)	2.2	8.7	-4.0	-3.9	7.6	-3.3	0.9
Repurchase agreements	-0.2	6.3	-6.4	-39.0	-5.8	9.5	-4.5
Money market fund shares	3.6	9.4	-1.8	11.5	7.0	-2.1	2.2
Debt securities issued with a maturity of up to two years	-1.5	11.6	-13.0	-28.4	26.1	-21.4	-2.3
Counterparts of M3 [2)]							
MFI liabilities:							
Central government holdings	4.6	7.4	1.9	2.5	7.8	12.6	11.3
Longer-term financial liabilities vis-a-vis other euro area residents	3.4	6.6	0.3	-3.0	-1.7	-1.1	0.7
Deposits with an agreed maturity of over two years	2.3	5.8	-1.1	-4.8	-3.4	-4.0	-2.0
Deposits redeemable at notice of over three months	-3.8	-0.9	-6.6	-14.5	-10.9	-9.7	-8.1
Debt securities issued with a maturity of over two years	2.2	7.3	-2.7	-8.6	-5.3	-3.4	0.8
Capital and reserves	6.1	7.2	4.9	4.6	2.9	3.3	2.8
MFI assets:							
Credit to euro area residents	4.4	6.9	1.9	2.3	4.9	3.8	2.6
Credit to general government	3.4	0.6	6.2	8.2	12.4	6.6	2.0
of which: loans	-0.1	-0.1	0.0	-1.9	-3.1	-4.0	-2.8
Credit to the private sector [3)]	4.6	8.7	0.7	0.7	2.5	2.8	2.9
of which: loans [4)]	4.5	8.3	0.8	0.7	2.4	2.9	3.4

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) The table presents only selected counterparts to M3; i.e. net external assets and "other counterparts" (residual) are not included.
3) Private sector refers to euro area non-MFIs excluding general government.
4) Adjusted for loan sales and securitisation (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs.

Chart 1.10 Monetary aggregates [1)]

(annual percentage changes at the end of each month; seasonally adjusted)



Source: ECB.
1) Data refer to the changing composition of the euro area.

1 Financial and monetary developments

1.11 MFI loans to non-financial corporations 1)

(annual percentage changes at the end of each year; period averages; not seasonally adjusted)

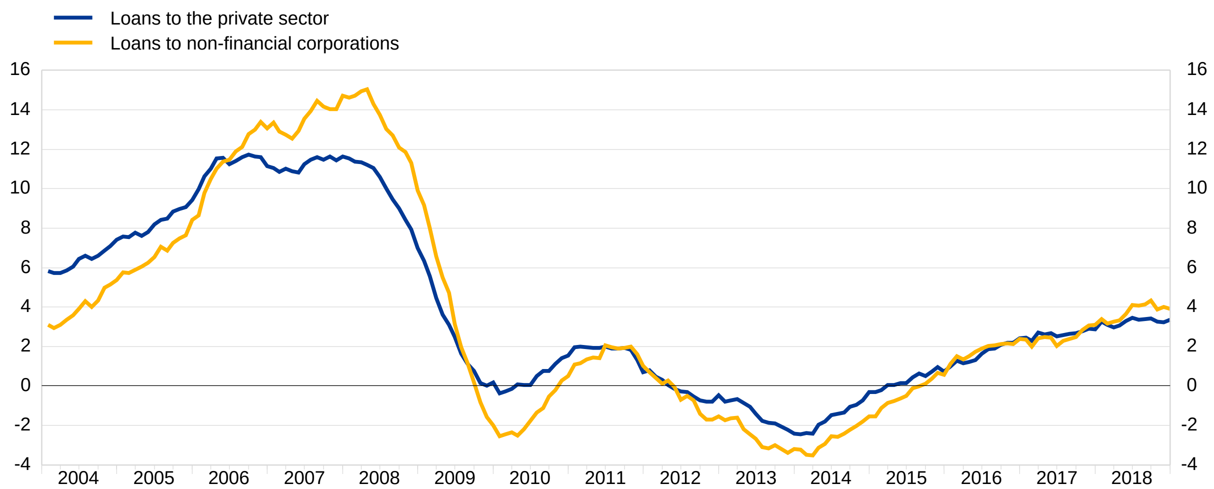
	2004-2008	2009-2018	2013	2014	2015	2016	2017	2018
Belgium	9.5	3.2	1.1	0.7	3.8	6.9	6.5	9.5
Germany	3.6	0.9	-1.9	-0.5	0.8	3.5	4.2	6.5
Estonia	39.2	1.7	3.6	3.6	6.2	6.6	5.5	4.0
Ireland	24.2	-2.7	-5.7	-6.4	-5.2	0.2	1.2	3.9
Greece	13.6	-1.3	-3.1	-3.2	-1.2	-0.2	0.0	0.2
Spain	19.3	-3.6	-9.8	-6.6	-1.2	-0.8	0.2	-1.9
France	10.2	3.0	-0.2	2.9	3.3	5.3	6.6	6.4
Italy	9.2	-0.6	-5.5	-2.5	-0.5	0.3	0.4	1.3
Cyprus	26.1	1.4	-5.7	-0.8	0.8	-8.0	0.3	3.5
Latvia	-	0.4	-0.6	-6.7	1.1	5.9	2.1	3.6
Lithuania	33.6	0.2	-3.2	-1.2	3.3	9.8	5.4	5.1
Luxembourg	12.3	-0.5	-3.0	2.9	7.5	12.0	3.2	3.5
Malta	11.0	0.9	-9.1	4.1	-10.3	7.3	14.8	3.6
Netherlands	9.7	0.3	1.7	-3.6	-3.4	-0.1	-0.6	-0.8
Austria	6.9	2.1	-0.2	1.1	0.7	2.0	4.5	8.0
Portugal	7.8	-1.5	-3.0	-6.8	-1.1	-1.4	-0.3	2.2
Slovenia	24.0	-3.4	-7.8	-13.9	-7.6	0.4	1.9	1.5
Slovakia	20.3	3.4	1.7	1.9	7.3	4.2	7.8	8.2
Finland	11.7	4.5	5.7	4.9	5.2	4.5	4.2	7.7
Euro area	10.2	0.3	-3.2	-1.5	0.6	2.4	3.1	3.9
Bulgaria	-	3.7	1.4	2.4	-0.1	2.2	4.8	8.6
Czech Republic	-	4.7	2.5	2.3	6.4	8.0	6.1	6.2
Denmark	-	0.1	1.1	0.5	-0.1	3.1	1.1	4.1
Croatia	-	0.0	1.3	-3.4	-3.2	1.5	5.0	2.2
Hungary	-	0.8	-1.3	1.8	-7.1	4.9	10.2	13.6
Poland	-	5.8	1.8	5.1	7.9	5.1	8.6	6.7
Romania	-	3.7	-4.8	2.1	-1.6	2.9	7.9	7.7
Sweden	-	4.0	1.0	2.5	3.7	4.6	5.7	6.1
United Kingdom	-	-2.1	-5.6	-3.4	-0.3	3.2	3.7	2.5

Source: ECB.

1) Data for euro area countries refer to loans granted by other MFIs to euro area non-financial corporations, while data for non-euro area EU countries refer to loans granted to domestic non-financial corporations. Data are adjusted for loan sales and securitisations (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs. Data for euro area countries are available for the years since 2004, with the exception of Estonia, Lithuania and Slovenia (from 2005), Cyprus and Malta (from 2006), Slovakia (from 2007) and Latvia (from 2011). Data for non-euro area EU countries are available for the years since 2010, with the exception of Croatia (from 2011).

Chart 1.11 MFI loans to the private sector and to non-financial corporations 1)

(annual percentage changes at the end of each month; seasonally adjusted)



Source: ECB.

1) Private sector refers to euro area non-MFIs excluding general government. Data are adjusted for loan sales and securitisation (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs.

1 Financial and monetary developments

1.12 MFI loans to households 1)

(annual percentage changes at the end of each year; period averages; not seasonally adjusted)

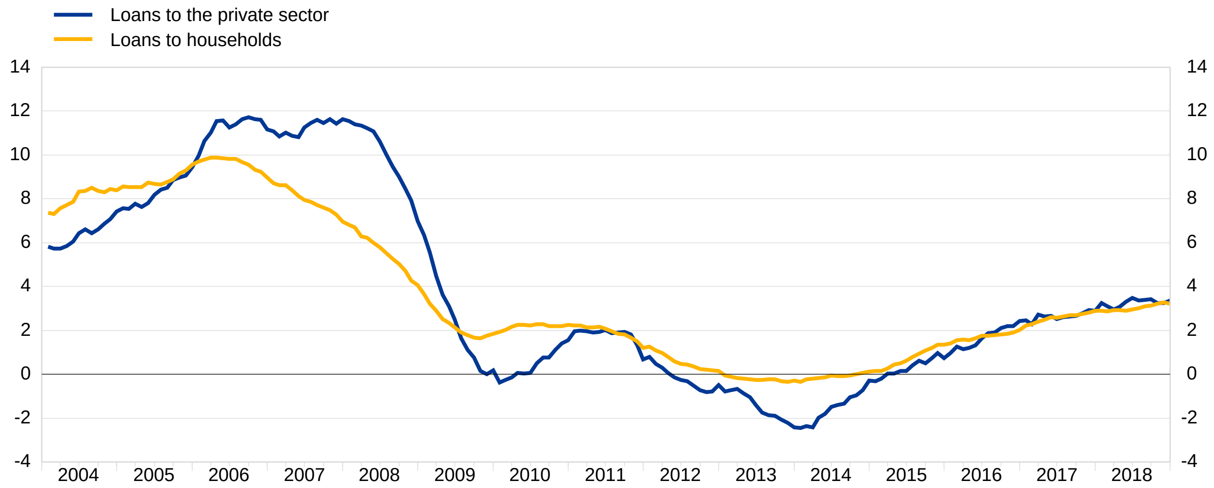
	2004-2008	2009-2018	2013	2014	2015	2016	2017	2018
Belgium	10.2	4.7	2.2	3.8	4.3	5.1	5.0	5.7
Germany	0.0	1.8	1.2	1.5	2.8	2.8	3.2	3.9
Estonia	42.3	1.5	0.4	2.5	3.9	5.3	7.0	6.6
Ireland	18.7	-3.1	-3.9	-3.6	-3.6	-2.6	-1.5	-0.8
Greece	24.3	-2.2	-3.1	-2.6	-2.9	-2.8	-2.0	-2.2
Spain	15.3	-2.0	-5.0	-3.9	-2.2	-1.2	-0.5	0.4
France	10.4	4.1	2.6	1.9	3.5	4.4	6.0	5.6
Italy	11.1	1.7	-1.3	-0.5	0.7	1.9	2.8	2.6
Cyprus	15.9	1.4	-4.6	-2.7	-1.0	-0.9	0.0	-0.2
Latvia	-	-2.6	-4.8	-3.9	-2.5	0.6	0.6	0.7
Lithuania	56.9	1.7	0.0	1.5	4.9	8.2	7.6	8.6
Luxembourg	4.4	5.2	3.9	4.2	4.8	4.1	7.8	7.3
Malta	11.1	6.2	4.3	6.8	6.5	5.0	6.5	7.6
Netherlands	7.2	0.0	-1.7	-1.3	-1.0	-0.6	0.0	0.3
Austria	5.9	1.7	0.6	1.1	1.9	3.1	3.1	3.9
Portugal	8.2	-1.4	-4.1	-3.5	-2.6	-1.7	-0.3	0.9
Slovenia	22.7	3.0	-2.8	-1.5	0.6	4.9	7.2	6.8
Slovakia	26.9	11.8	10.3	13.2	13.1	13.3	12.4	10.8
Finland	12.1	3.6	2.1	1.9	2.6	2.5	2.7	2.2
Euro area	7.6	1.4	-0.3	0.1	1.3	2.0	2.9	3.2
Bulgaria	-	2.3	0.4	-1.0	-0.1	4.2	8.9	9.1
Czech Republic	-	6.7	5.2	4.7	6.9	8.3	8.4	7.9
Denmark	-	0.5	-1.6	0.2	0.8	1.0	0.4	1.3
Croatia	-	0.4	-1.1	-1.0	-1.8	0.6	4.8	5.8
Hungary	-	-4.9	-5.8	-7.0	-12.0	-0.1	2.6	7.3
Poland	-	5.5	4.1	4.7	5.2	3.9	6.4	5.6
Romania	-	4.7	0.4	2.3	1.3	7.7	10.5	9.6
Sweden	-	6.3	5.1	6.0	7.7	7.1	7.0	5.5
United Kingdom	-	1.3	0.6	2.8	3.3	4.0	3.9	3.1

Source: ECB.

1) Data for euro area countries refer to loans granted by other MFIs to euro area households, while data for non-euro area EU countries refer to loans granted to domestic households. Data are adjusted for loan sales and securitisations (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs. Data for euro area countries are available for the years since 2004, with the exception of Estonia, Lithuania and Slovenia (from 2005), Cyprus and Malta (from 2006), Slovakia (from 2007) and Latvia (from 2011). Data for non-euro area EU countries are available for the years since 2010, with the exception of Croatia (from 2011).

Chart 1.12 MFI loans to the private sector and to households 1)

(annual percentage changes at the end of each month; seasonally adjusted)



Source: ECB.

1) Private sector refers to euro area non-MFIs excluding general government. Data are adjusted for loan sales and securitisation (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs.

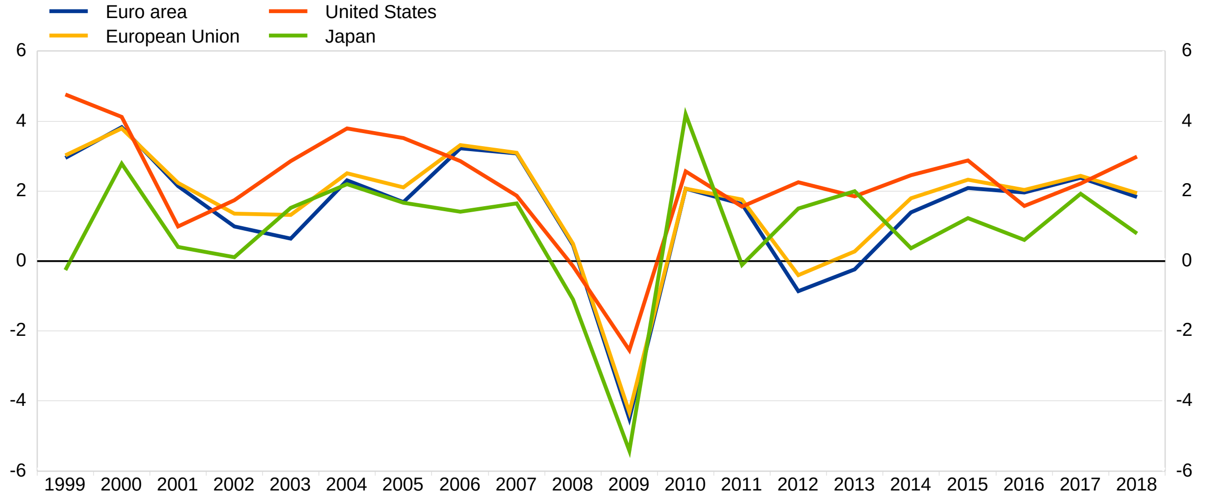
2 Economic activity

2.1 GDP
(chain-linked volumes; annual percentage changes)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	1.7	2.3	1.0	1.7	1.5	1.7	1.4
Germany	1.4	1.6	1.3	1.7	2.2	2.2	1.4
Estonia	3.6	5.7	1.7	1.9	3.5	4.9	3.9
Ireland	5.2	5.2	5.2	25.1	5.0	7.2	6.7
Greece	0.4	3.5	-2.7	-0.4	-0.2	1.5	1.9
Spain	2.0	3.6	0.4	3.6	3.2	3.0	2.5
France	1.5	2.1	0.9	1.1	1.2	2.2	1.5
Italy	0.4	1.2	-0.3	0.9	1.1	1.6	0.9
Cyprus	2.4	4.5	0.4	2.0	4.8	4.5	3.9
Latvia	3.7	6.6	0.9	3.0	2.1	4.6	4.8
Lithuania	3.7	6.1	1.4	2.0	2.4	4.1	3.4
Luxembourg	3.2	4.3	2.0	3.9	2.4	1.5	.
Malta	3.7	2.4	4.7	10.7	5.7	6.7	6.6
Netherlands	1.7	2.5	0.9	2.0	2.2	2.9	2.5
Austria	1.7	2.4	1.1	1.1	2.0	2.6	2.7
Portugal	0.9	1.6	0.1	1.8	1.9	2.8	2.1
Slovenia	2.5	4.3	0.7	2.3	3.1	4.9	4.5
Slovakia	3.7	5.1	2.3	4.2	3.1	3.2	4.1
Finland	1.7	3.3	0.2	0.5	2.8	2.7	2.2
Euro area	1.4	2.1	0.8	2.1	2.0	2.4	1.8
Bulgaria	3.0	4.4	1.6	3.5	3.9	3.8	3.1
Czech Republic	2.8	4.0	1.5	5.3	2.5	4.4	3.0
Denmark	1.3	1.8	0.9	2.3	2.4	2.3	1.2
Croatia	1.8	3.7	-0.1	2.4	3.5	2.9	2.6
Hungary	2.4	3.4	1.5	3.5	2.3	4.1	4.9
Poland	3.8	4.2	3.5	3.8	3.1	4.8	5.4
Romania	3.8	5.5	2.1	3.9	4.8	7.0	4.1
Sweden	2.4	3.0	1.8	4.5	2.7	2.1	2.3
United Kingdom	1.9	2.6	1.3	2.3	1.8	1.8	1.4
European Union	1.6	2.3	1.0	2.3	2.0	2.4	1.9
United States	2.2	2.6	1.8	2.9	1.6	2.2	3.0
Japan	0.9	1.0	0.7	1.2	0.6	1.9	0.8

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) Data for Malta available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

Chart 2.1 GDP
(chain-linked volumes; annual percentage changes)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

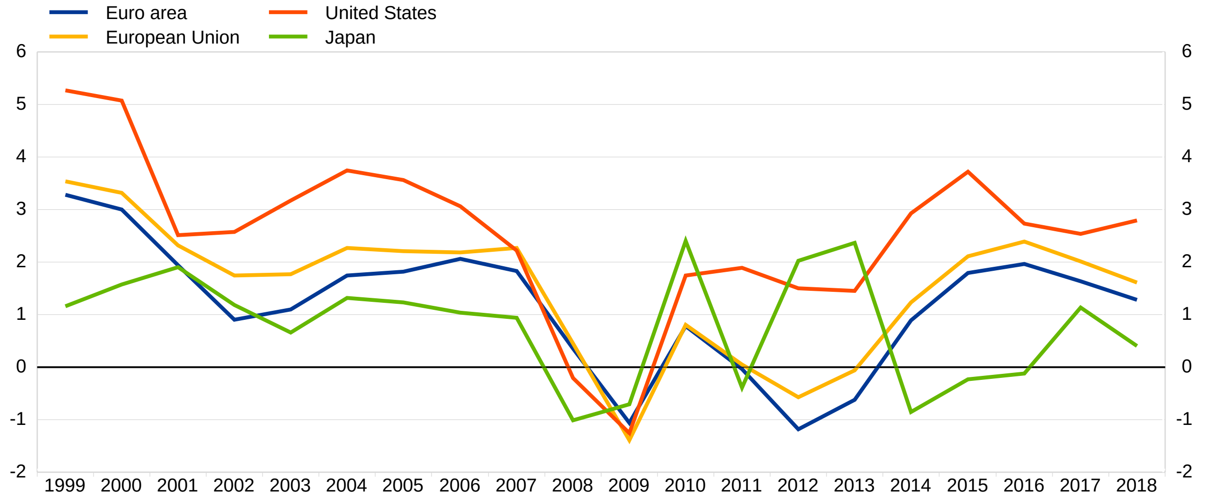
2 Economic activity

2.2 Private consumption
(chain-linked volumes; annual percentage changes)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	1.2	1.4	1.0	0.9	1.7	1.1	0.6
Germany	1.0	0.9	1.1	1.7	2.1	1.8	1.0
Estonia	3.9	6.6	1.2	4.4	4.4	2.6	4.7
Ireland	3.0	5.5	0.6	3.6	4.1	1.6	3.0
Greece	0.4	3.7	-2.7	-0.2	0.0	0.9	1.1
Spain	1.6	3.3	0.0	3.0	2.9	2.5	2.4
France	1.6	2.3	0.9	1.5	2.1	1.0	0.9
Italy	0.4	1.0	-0.1	1.9	1.3	1.6	0.6
Cyprus	3.1	5.8	0.4	2.4	4.5	4.1	3.7
Latvia	3.7	6.5	1.0	2.5	1.4	4.1	4.5
Lithuania	4.4	8.1	0.9	4.0	5.0	3.3	3.9
Luxembourg	2.6	2.8	2.3	3.2	1.7	3.0	.
Malta	2.2	1.7	2.7	5.1	2.4	3.6	7.3
Netherlands	1.0	1.7	0.4	2.0	1.1	1.9	2.5
Austria	1.3	1.8	0.9	0.4	1.4	1.4	1.6
Portugal	1.1	2.0	0.1	2.3	2.4	2.3	2.5
Slovenia	1.9	3.1	0.8	2.3	3.9	1.9	2.2
Slovakia	2.8	4.6	1.1	2.2	2.9	3.5	3.0
Finland	2.1	3.2	1.0	1.5	2.2	1.5	1.4
Euro area	1.2	1.8	0.5	1.8	2.0	1.6	1.3
Bulgaria	4.8	7.6	2.1	4.5	3.6	4.5	6.4
Czech Republic	2.5	3.3	1.6	3.7	3.6	4.3	3.2
Denmark	1.2	1.7	0.8	2.3	2.1	2.1	2.3
Croatia	1.5	3.5	-0.4	1.1	3.5	3.6	3.5
Hungary	2.3	3.7	1.0	3.9	4.0	4.8	5.4
Poland	3.4	3.9	2.9	3.0	3.9	4.9	4.5
Romania	5.2	8.1	2.5	6.0	7.9	10.0	5.2
Sweden	2.4	2.7	2.0	3.1	2.9	2.2	1.2
United Kingdom	2.1	3.0	1.2	2.6	3.1	2.1	1.7
European Union	1.5	2.2	0.8	2.1	2.4	2.0	1.6
United States	2.5	3.1	2.0	3.7	2.7	2.5	2.8
Japan	0.8	1.0	0.6	-0.2	-0.1	1.1	0.4

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) Data for Malta available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

Chart 2.2 Private consumption
(chain-linked volumes; annual percentage changes)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

2 Economic activity

2.3 Government consumption

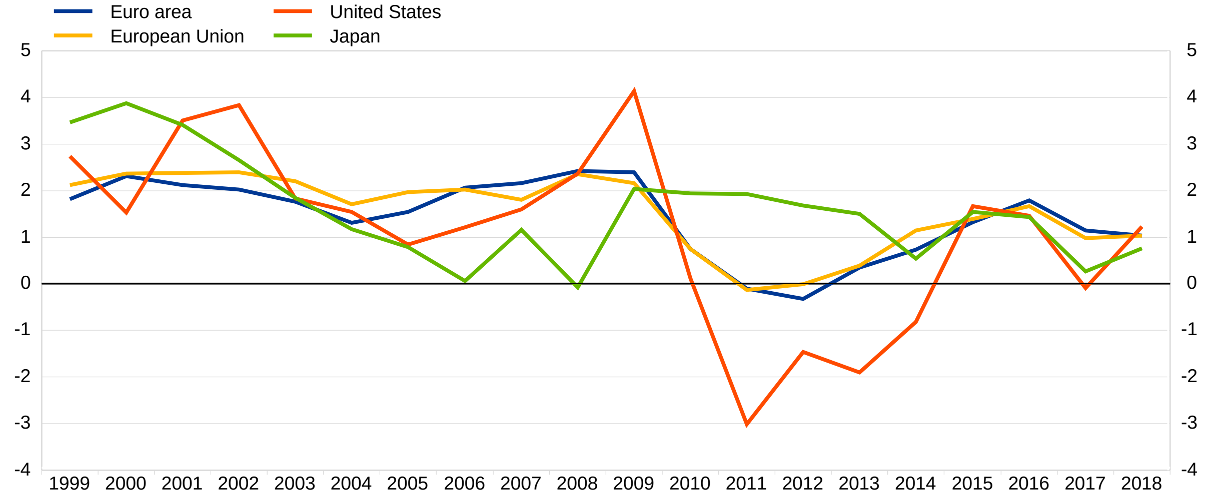
(chain-linked volumes; annual percentage changes)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	1.3	1.9	0.7	0.6	-0.2	0.6	0.8
Germany	1.4	1.0	1.9	2.9	4.0	1.6	1.0
Estonia	2.0	3.0	1.1	3.0	2.2	0.6	0.3
Ireland	2.9	5.3	0.6	1.9	3.5	3.7	5.8
Greece	0.5	3.5	-2.6	1.6	-0.7	-0.4	-2.5
Spain	2.7	5.0	0.5	2.0	1.0	1.9	2.3
France	1.5	1.6	1.4	1.0	1.4	1.3	1.1
Italy	0.5	1.4	-0.4	-0.6	0.1	-0.2	0.2
Cyprus	1.8	3.8	-0.2	-0.5	-0.8	3.1	4.3
Latvia	1.4	2.8	0.1	1.9	3.9	4.1	4.0
Lithuania	0.6	1.4	-0.2	0.2	-0.1	-0.4	0.6
Luxembourg	3.4	4.1	2.6	2.8	2.5	3.1	.
Malta	2.8	2.8	2.7	3.7	-2.8	2.1	11.7
Netherlands	2.0	3.2	0.8	-0.1	1.3	1.1	1.1
Austria	1.3	1.7	0.8	0.8	1.8	1.5	0.2
Portugal	0.8	2.2	-0.5	1.3	0.8	0.2	0.8
Slovenia	1.8	3.2	0.4	2.4	2.7	0.5	2.6
Slovakia	2.7	3.2	2.2	5.4	1.6	1.7	1.9
Finland	1.1	1.6	0.6	0.2	1.8	-0.4	1.7
Euro area	1.4	2.0	0.9	1.3	1.8	1.1	1.0
Bulgaria	1.3	1.7	0.9	1.3	2.2	3.7	4.7
Czech Republic	1.6	2.0	1.1	1.9	2.7	1.3	3.9
Denmark	1.5	2.0	1.0	1.7	0.2	0.7	0.5
Croatia	1.4	2.0	0.8	-1.0	0.7	2.7	2.9
Hungary	1.6	1.9	1.2	1.3	0.7	1.3	-0.5
Poland	3.1	4.0	2.2	2.3	1.9	3.5	3.6
Romania	1.0	1.1	0.9	-0.3	2.2	2.6	3.8
Sweden	1.1	0.7	1.5	2.4	3.6	0.0	0.9
United Kingdom	1.9	3.2	0.7	1.4	0.8	-0.2	0.2
European Union	1.5	2.1	0.9	1.4	1.7	1.0	1.0
United States	1.1	2.1	0.1	1.7	1.5	-0.1	1.2
Japan	1.6	1.8	1.4	1.5	1.4	0.3	0.8

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) Data for Malta available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

Chart 2.3 Government consumption

(chain-linked volumes; annual percentage changes)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

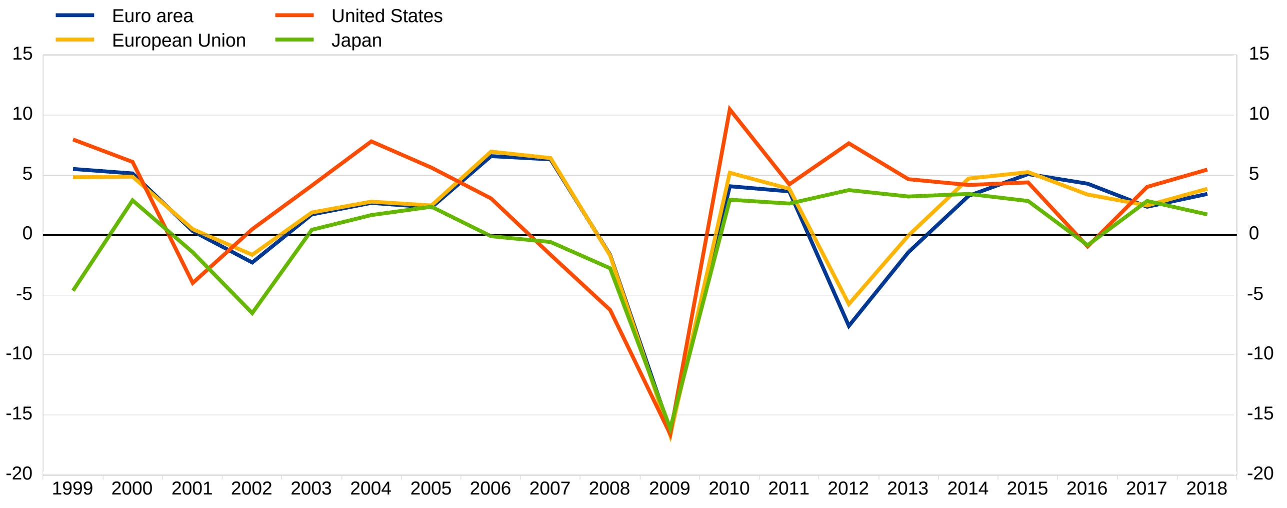
2 Economic activity

2.4 Gross capital formation
(chain-linked volumes; annual percentage changes)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	2.4	3.6	1.1	4.1	5.1	1.6	0.8
Germany	0.9	0.8	1.1	0.1	4.6	3.2	5.4
Estonia	4.7	7.7	1.7	-6.4	7.0	10.3	11.1
Ireland	5.2	5.1	5.4	45.0	56.7	-31.9	6.6
Greece	-2.6	4.4	-9.1	-12.5	6.1	10.0	1.8
Spain	1.7	5.3	-1.8	9.0	2.5	5.4	5.4
France	2.0	3.4	0.6	2.2	0.9	5.3	1.1
Italy	0.1	2.4	-2.2	2.4	3.7	2.2	3.2
Cyprus	2.6	8.4	-2.9	18.1	21.9	31.8	-0.3
Latvia	4.5	11.2	-1.9	2.4	2.5	14.0	15.0
Lithuania	3.5	8.9	-1.7	22.1	-4.5	4.3	1.7
Luxembourg	3.7	4.9	2.5	-4.7	7.6	1.2	.
Malta	1.9	0.9	2.6	51.2	1.5	-12.8	0.5
Netherlands	1.6	2.5	0.7	29.1	-6.7	4.4	4.4
Austria	1.5	1.8	1.2	3.2	4.2	5.6	3.0
Portugal	-1.0	0.4	-2.3	6.4	1.8	9.2	5.6
Slovenia	1.6	6.9	-3.3	0.1	0.0	13.2	12.6
Slovakia	2.1	3.6	0.6	16.1	-3.1	1.1	8.9
Finland	1.6	3.2	0.0	1.6	7.6	4.7	5.1
Euro area	1.2	2.6	-0.2	5.1	4.3	2.4	3.4
Bulgaria	5.1	14.6	-3.7	1.4	-4.6	6.5	6.6
Czech Republic	2.8	5.4	0.2	13.0	-4.3	4.0	5.7
Denmark	1.8	2.5	1.1	5.2	6.2	4.0	5.1
Croatia	2.5	7.9	-2.6	8.9	7.7	4.6	6.1
Hungary	1.5	2.2	0.8	-1.3	-5.4	17.1	17.2
Poland	3.9	5.0	2.8	4.9	-2.0	6.2	10.0
Romania	5.5	12.1	-0.7	6.8	-0.2	4.2	8.7
Sweden	3.4	4.2	2.6	8.4	3.6	6.4	4.7
United Kingdom	2.1	1.4	2.9	4.6	1.6	0.3	2.1
European Union	1.5	2.7	0.4	5.2	3.4	2.5	3.8
United States	2.4	2.2	2.5	4.4	-0.9	4.0	5.4
Japan	-0.2	-0.9	0.5	2.9	-0.8	2.8	1.7

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) Data for Malta available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

Chart 2.4 Gross capital formation
(chain-linked volumes; annual percentage changes)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

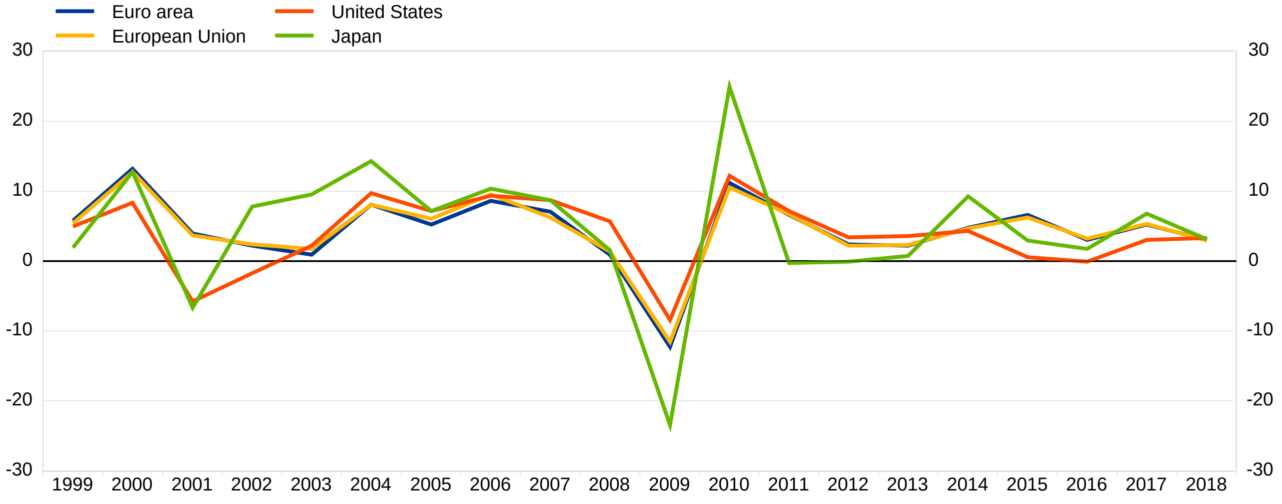
2 Economic activity

2.5 Exports of goods and services
(chain-linked volumes; annual percentage changes)

	1999-2018 [1),2)]	1999-2008 [1)]	2009-2018 [2)]	2015	2016	2017	2018
Belgium	3.9	4.6	3.2	3.5	7.6	5.0	3.5
Germany	5.1	7.2	3.0	5.3	2.3	4.6	2.0
Estonia	5.6	7.0	4.3	-1.4	5.2	3.5	4.3
Ireland	8.1	7.6	8.6	39.3	4.4	7.8	8.9
Greece	4.2	7.5	1.1	3.1	-1.8	6.8	8.7
Spain	3.8	4.5	3.1	4.2	5.2	5.2	2.2
France	3.2	4.0	2.5	4.6	1.5	4.5	3.0
Italy	2.3	2.9	1.6	4.4	2.1	5.9	1.9
Cyprus	2.4	1.9	2.8	5.2	4.6	6.0	3.3
Latvia	6.3	8.4	4.2	3.1	4.4	6.2	1.4
Lithuania	8.1	9.6	6.7	0.9	4.0	13.6	4.9
Luxembourg	5.9	8.1	3.6	5.3	3.8	-1.9	.
Malta	5.4	6.2	4.7	15.6	4.5	5.6	2.1
Netherlands	4.3	5.3	3.3	7.4	1.7	5.3	2.7
Austria	4.3	6.3	2.3	3.5	2.7	4.7	4.4
Portugal	4.3	4.4	4.2	6.1	4.4	7.8	3.7
Slovenia	6.2	8.8	3.6	5.0	6.4	10.7	7.2
Slovakia	8.7	12.6	5.0	6.0	5.5	5.9	4.8
Finland	3.4	7.1	-0.2	0.8	3.5	7.7	1.5
Euro area	4.3	5.5	3.1	6.6	3.0	5.2	3.0
Bulgaria	4.0	3.7	4.3	5.7	8.1	5.8	-0.8
Czech Republic	8.0	11.4	4.7	6.0	4.3	6.7	4.5
Denmark	3.8	5.8	1.7	3.6	3.9	3.6	0.5
Croatia	4.5	6.5	2.6	9.4	5.6	6.4	2.8
Hungary	8.3	12.9	3.8	7.2	5.1	4.7	4.7
Poland	7.6	8.8	6.3	7.7	8.8	9.5	6.2
Romania	10.5	12.7	8.4	4.6	16.0	10.0	4.7
Sweden	3.9	5.7	2.2	5.7	3.0	3.2	3.5
United Kingdom	3.1	4.3	1.9	4.4	1.0	5.6	0.2
European Union	4.4	5.7	3.1	6.3	3.2	5.4	2.9
United States	3.7	4.7	2.8	0.6	-0.1	3.0	3.3
Japan	4.2	6.6	1.9	2.9	1.7	6.8	3.1

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) Data for Malta available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

Chart 2.5 Exports of goods and services
(chain-linked volumes; annual percentage changes)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

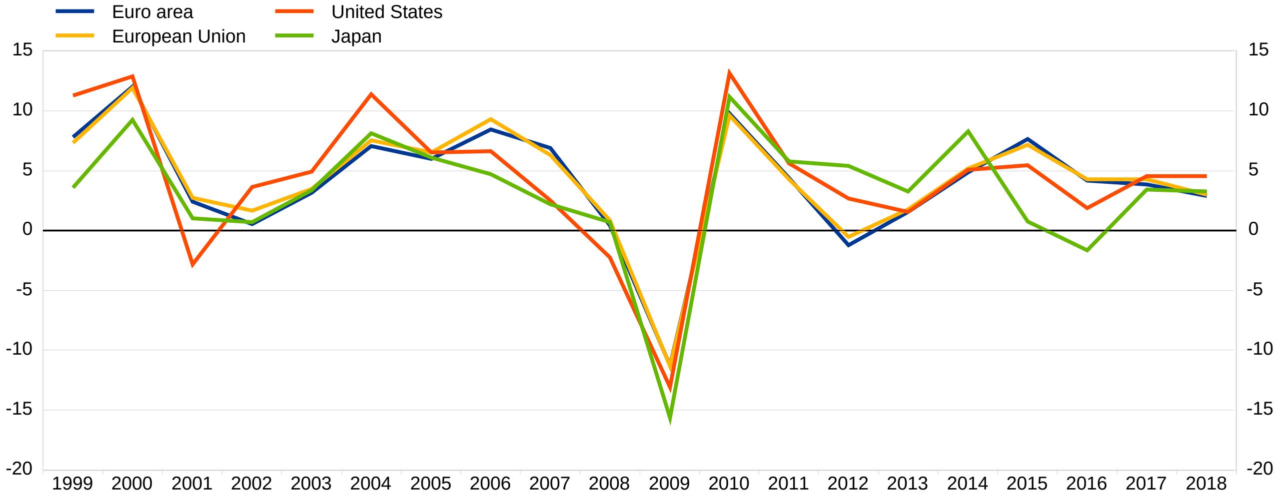
2 Economic activity

2.6 Imports of goods and services
(chain-linked volumes; annual percentage changes)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	3.8	4.4	3.2	3.4	8.5	4.3	2.7
Germany	4.5	5.6	3.3	5.6	4.1	4.8	3.3
Estonia	5.9	8.4	3.5	-1.7	5.5	3.6	6.1
Ireland	6.9	7.8	5.9	33.2	18.5	-9.4	7.0
Greece	2.1	7.2	-2.9	0.4	0.3	7.1	4.2
Spain	3.2	6.3	0.2	5.4	2.9	5.6	3.6
France	3.9	5.2	2.6	5.9	3.0	4.0	1.2
Italy	2.2	3.5	0.9	6.8	3.6	5.5	2.3
Cyprus	2.8	4.7	1.0	8.4	6.6	12.2	2.0
Latvia	5.3	8.8	2.0	2.1	4.4	8.9	4.7
Lithuania	7.6	11.0	4.3	6.8	3.8	12.0	4.3
Luxembourg	6.3	8.4	4.1	4.3	4.5	-2.2	.
Malta	4.3	5.6	3.3	18.3	1.6	0.6	1.3
Netherlands	4.1	5.2	3.1	14.5	-2.0	4.9	2.7
Austria	3.6	4.9	2.4	3.6	3.4	5.1	2.8
Portugal	3.1	4.0	2.2	8.5	4.7	8.1	4.9
Slovenia	5.2	8.4	2.1	4.7	6.6	10.3	7.7
Slovakia	6.9	10.2	3.7	8.0	3.4	5.3	5.3
Finland	4.0	7.0	1.0	2.7	5.4	3.8	4.2
Euro area	4.0	5.4	2.5	7.6	4.2	3.9	2.9
Bulgaria	6.9	12.0	2.0	5.4	4.5	7.5	3.7
Czech Republic	7.5	10.9	4.3	6.8	2.8	5.9	6.0
Denmark	4.2	6.6	1.8	4.6	4.2	3.6	2.9
Croatia	4.0	7.3	0.8	9.2	6.2	8.1	5.5
Hungary	7.6	12.0	3.4	5.8	3.9	7.7	7.1
Poland	6.3	7.9	4.8	6.6	7.6	10.0	7.0
Romania	11.3	17.2	5.7	8.0	16.5	11.3	8.6
Sweden	3.9	5.0	2.8	5.2	4.3	4.8	2.9
United Kingdom	3.6	4.9	2.2	5.5	3.3	3.5	0.8
European Union	4.2	5.7	2.6	7.2	4.3	4.3	3.0
United States	4.1	5.3	2.9	5.5	1.9	4.6	4.6
Japan	3.0	3.9	2.2	0.8	-1.6	3.4	3.3

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) Data for Malta available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

Chart 2.6 Imports of goods and services
(chain-linked volumes; annual percentage changes)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

2 Economic activity

2.7 Nominal GDP
(current prices; EUR billions)

	1999-2018 [1]	1999-2008	2009-2018 [1]	2015	2016	2017	2018
Belgium	348.0	296.2	399.8	411.0	424.7	439.1	450.6
Germany	2,598.4	2,283.0	2,913.9	3,048.9	3,159.8	3,277.3	3,386.0
Estonia	14.8	10.2	19.4	20.7	21.7	23.6	25.7
Ireland	185.4	150.1	220.8	262.5	273.2	294.1	318.5
Greece	190.1	186.3	194.0	177.3	176.5	180.2	184.7
Spain	969.8	849.0	1,090.7	1,081.2	1,118.7	1,166.3	1,206.9
France	1,915.1	1,688.8	2,141.4	2,198.4	2,228.6	2,291.7	2,349.0
Italy	1,532.5	1,417.5	1,647.5	1,652.1	1,689.8	1,724.2	1,753.9
Cyprus	16.4	13.9	19.0	17.7	18.5	19.6	20.7
Latvia	18.3	13.5	23.1	24.3	25.0	27.0	29.5
Lithuania	27.4	19.3	35.5	37.4	38.8	42.2	45.1
Luxembourg	37.2	28.6	46.8	51.6	53.3	55.3	.
Malta	6.8	5.0	8.7	9.6	10.3	11.3	12.3
Netherlands	605.3	529.8	680.7	690.0	708.3	737.0	772.7
Austria	288.2	243.9	332.6	344.3	356.2	369.9	386.1
Portugal	165.5	150.4	180.6	179.8	186.5	194.6	201.5
Slovenia	33.3	27.9	38.7	38.9	40.4	43.0	45.9
Slovakia	56.2	36.4	76.1	79.1	81.2	84.9	90.2
Finland	182.0	158.3	205.7	210.0	216.1	223.9	233.2
Euro area	9,192.0	8,108.2	10,275.7	10,534.7	10,827.7	11,205.2	11,569.8
Bulgaria	33.2	22.0	44.4	45.3	48.1	51.7	55.2
Czech Republic	134.8	100.8	168.9	168.5	176.4	191.7	207.4
Denmark	233.7	202.8	264.7	273.0	282.1	292.8	297.3
Croatia	39.5	33.3	45.8	44.6	46.6	49.0	51.5
Hungary	93.2	78.2	108.2	110.9	113.9	124.1	131.9
Poland	322.1	236.7	407.5	430.3	426.5	467.2	496.6
Romania	113.3	73.6	153.0	160.3	170.4	187.5	202.1
Sweden	363.9	304.6	423.3	449.2	463.1	475.2	467.0
United Kingdom	2,043.9	1,921.1	2,166.6	2,611.9	2,403.4	2,338.0	2,390.2
European Union	12,569.7	11,081.3	14,058.1	14,828.6	14,958.3	15,382.4	15,869.1
United States	12,236.2	10,549.6	13,922.9	16,421.0	16,900.5	17,248.6	17,391.2
Japan	4,125.5	4,072.2	4,178.8	3,955.8	4,459.2	4,302.1	4,209.5

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

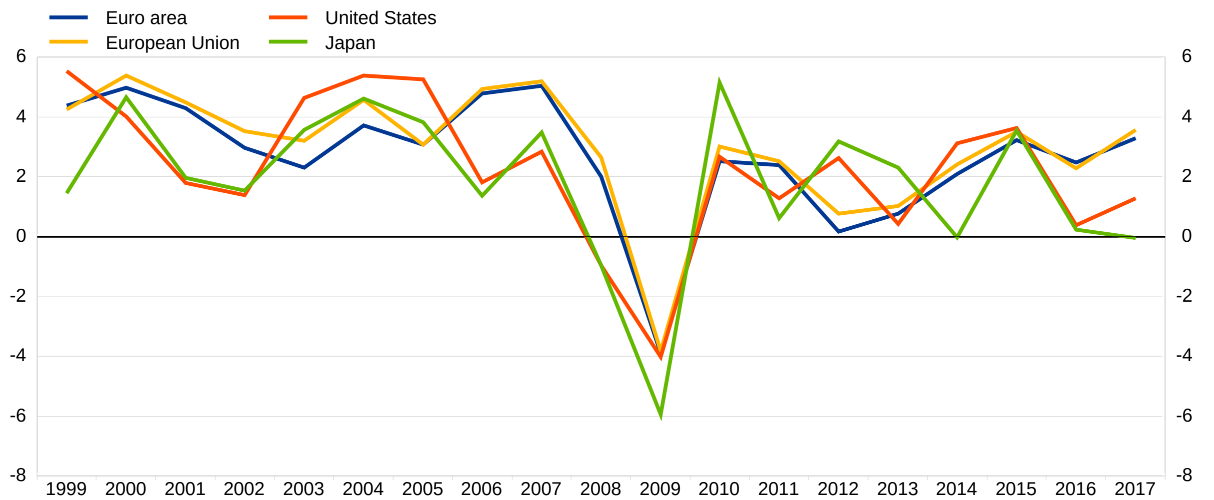
2 Economic activity

2.8 GDP per capita
(current prices; PPPs [1] in EUR thousands)

	1999-2017	1999-2008	2009-2017	2014	2015	2016	2017
Belgium	30.0	27.0	33.3	33.6	34.5	35.2	36.0
Germany	30.4	26.8	34.4	35.5	36.2	37.1	38.3
Estonia	16.2	12.4	20.5	21.8	22.1	23.0	24.4
Ireland	36.4	31.7	41.6	38.5	52.1	52.8	56.0
Greece	20.8	20.8	20.9	20.2	20.3	20.3	20.8
Spain	24.0	22.3	25.9	25.4	26.5	27.3	28.5
France	27.3	25.0	29.9	30.2	30.9	31.2	32.2
Italy	26.5	25.2	27.9	27.1	27.8	29.0	29.8
Cyprus	23.6	22.4	25.0	22.9	23.8	25.0	26.3
Latvia	14.0	11.3	17.0	17.9	18.7	19.2	20.7
Lithuania	15.1	10.9	19.7	21.2	21.8	22.5	24.3
Luxembourg	63.9	55.8	73.0	75.9	77.6	77.8	78.3
Malta	21.3	18.2	24.7	25.1	27.3	28.5	30.2
Netherlands	33.9	31.0	37.1	37.0	38.0	38.2	39.6
Austria	32.1	28.5	36.1	36.7	37.7	38.4	39.2
Portugal	20.0	18.5	21.8	21.6	22.4	23.1	23.7
Slovenia	21.5	19.9	23.3	23.2	23.9	24.7	26.3
Slovakia	15.5	10.5	21.2	21.8	22.4	23.0	23.6
Finland	28.8	26.3	31.6	31.2	31.9	32.5	33.7
Euro area	27.3	24.9	30.0	30.1	31.1	31.8	32.9
Bulgaria	10.2	7.8	13.0	13.2	13.7	14.5	15.3
Czech Republic	20.5	17.4	23.9	24.3	25.4	26.2	27.7
Denmark	31.6	27.9	35.7	36.0	37.0	37.7	39.6
Croatia	14.5	12.3	16.9	16.6	17.4	18.2	19.1
Hungary	15.8	13.3	18.6	19.2	19.9	20.0	21.0
Poland	14.7	11.3	18.5	19.0	20.0	20.4	21.5
Romania	11.5	7.9	15.5	15.5	16.3	17.7	19.4
Sweden	31.4	28.4	34.8	35.0	36.6	36.5	37.4
United Kingdom	28.0	26.0	30.1	30.7	31.8	31.9	32.7
European Union	25.1	22.5	28.0	28.2	29.2	29.9	31.0
United States	37.6	34.9	40.6	41.3	42.8	43.0	43.5
Japan	27.2	25.5	29.1	29.5	30.5	30.6	30.6

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) GDP in Purchasing Power Standards (PPSs) in euro, calculated on the basis of PPP rates relative to the euro area (Euro 19 = 1).

Chart 2.8 GDP per capita
(current prices; PPPs [1] in EUR thousands)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) GDP in Purchasing Power Standards (PPSs) in euro, calculated on the basis of PPP rates relative to the euro area (Euro 19 = 1).

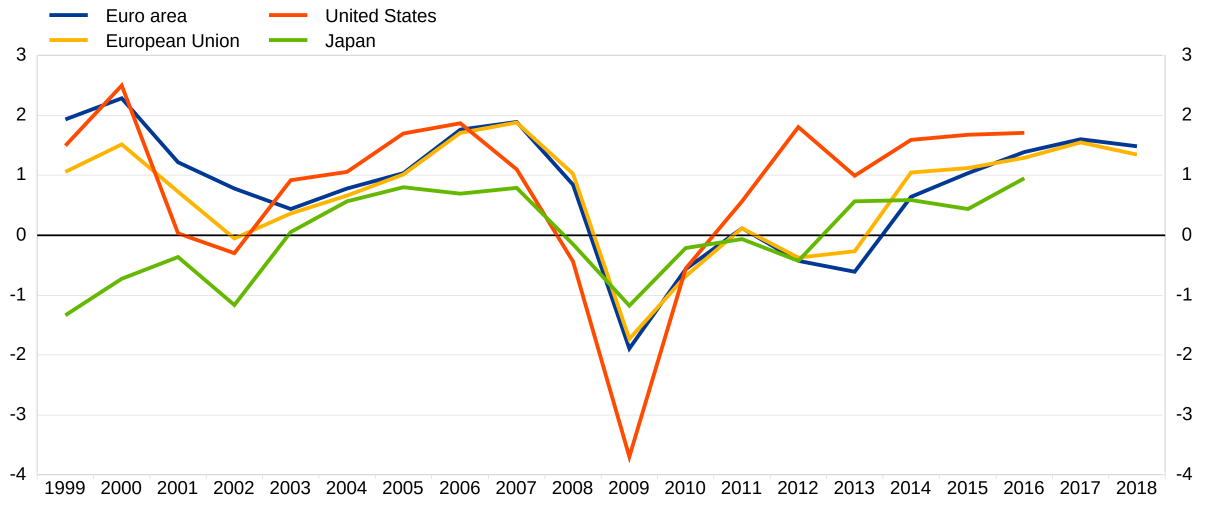
2 Economic activity

2.9 Employment
(persons employed; annual percentage changes)

	1999-2018 [1),2)]	1999-2008 [1)]	2009-2018 [2)]	2015	2016	2017	2018
Belgium	0.9	1.1	0.7	0.9	1.3	1.4	1.2
Germany	0.8	0.6	0.9	0.9	1.3	1.4	1.3
Estonia	0.3	0.6	0.1	2.9	0.3	2.7	1.2
Ireland	1.9	3.4	0.4	3.5	3.8	2.9	3.5
Greece	-0.1	1.2	-1.4	0.7	0.5	1.5	1.7
Spain	1.4	3.4	-0.7	2.8	2.6	2.6	2.1
France	0.7	1.1	0.4	0.2	0.7	1.1	1.0
Italy	0.6	1.3	0.0	0.7	1.3	1.2	0.9
Cyprus	1.6	2.9	0.3	1.5	4.6	4.3	4.0
Latvia	-0.4	0.8	-1.6	1.4	-0.3	0.0	1.6
Lithuania	-0.4	-0.5	-0.4	1.3	2.0	-0.5	1.1
Luxembourg	3.2	3.9	2.4	2.6	3.0	3.4	.
Malta	2.4	0.9	3.8	4.1	4.3	7.8	5.6
Netherlands	0.9	1.3	0.4	1.0	1.1	2.2	2.4
Austria	1.0	1.1	0.9	0.6	1.3	1.7	1.7
Portugal	0.1	0.4	-0.3	1.4	1.6	3.3	2.3
Slovenia	0.7	1.2	0.2	1.3	1.8	2.9	3.0
Slovakia	0.7	0.6	0.7	2.0	2.4	2.2	2.0
Finland	0.8	1.6	-0.1	-0.1	0.5	1.2	.
Euro area	0.8	1.3	0.3	1.0	1.4	1.6	1.5
Bulgaria	0.1	1.0	-0.8	0.4	0.5	1.8	-0.1
Czech Republic	0.4	0.4	0.4	1.4	1.6	1.6	1.6
Denmark	0.5	0.8	0.1	1.4	1.5	1.7	1.8
Croatia	0.2	1.3	-0.9	1.2	0.3	2.2	.
Hungary	0.6	0.1	1.2	2.4	3.1	2.0	2.2
Poland	0.7	1.0	0.4	1.5	0.8	1.1	0.5
Romania	-1.2	-1.6	-0.8	-1.3	-1.1	2.6	0.2
Sweden	1.1	1.1	1.1	1.5	1.9	2.3	1.8
United Kingdom	1.0	1.0	0.9	1.7	1.5	1.0	1.2
European Union	0.7	1.0	0.3	1.1	1.3	1.6	1.3
United States	0.8	1.0	0.5	1.7	1.7	.	.
Japan	0.0	-0.1	0.1	0.4	1.0	.	.

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) Data for Croatia and Poland available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017. However, for Japan and the United States the average refers to the periods 1999-2016 and 2009-2016.

Chart 2.9 Employment
(persons employed; annual percentage changes)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

2 Economic activity

2.10 Labour productivity

(per person employed; annual percentage changes)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	0.7	1.1	0.3	0.8	0.2	0.3	0.2
Germany	0.6	1.0	0.3	0.8	0.9	0.7	0.1
Estonia	3.3	5.1	1.5	-0.9	3.2	2.2	2.6
Ireland	3.3	1.7	4.8	20.7	1.2	4.1	3.4
Greece	0.5	2.2	-1.3	-1.2	-0.7	0.0	0.2
Spain	0.6	0.1	1.1	0.8	0.6	0.4	0.4
France	0.8	1.0	0.5	0.9	0.5	1.0	0.6
Italy	-0.2	0.0	-0.3	0.3	-0.2	0.4	0.0
Cyprus	0.8	1.5	0.1	0.5	0.2	0.2	-0.1
Latvia	4.1	5.8	2.5	1.5	2.4	4.7	3.1
Lithuania	4.2	6.6	1.8	0.7	0.4	4.7	2.4
Luxembourg	0.1	0.5	-0.4	1.3	-0.6	-1.8	.
Malta	1.0	1.2	0.9	6.4	1.4	-1.1	0.9
Netherlands	0.8	1.2	0.4	1.0	1.1	0.7	0.1
Austria	0.7	1.3	0.1	0.5	0.7	0.8	1.0
Portugal	0.8	1.2	0.5	0.4	0.3	-0.5	-0.2
Slovenia	1.8	3.1	0.6	1.0	1.2	1.9	1.5
Slovakia	3.0	4.5	1.5	2.2	0.7	1.0	2.1
Finland	0.8	1.7	0.0	0.6	2.3	1.5	-0.5
Euro area	0.7	0.8	0.5	1.0	0.6	0.8	0.3
Bulgaria	2.9	3.4	2.4	3.1	3.4	2.0	3.2
Czech Republic	2.4	3.6	1.1	3.8	0.8	2.8	1.4
Denmark	0.9	0.9	0.8	1.0	0.9	0.6	-0.6
Croatia	1.5	2.4	0.6	1.1	3.2	0.7	.
Hungary	1.8	3.3	0.3	1.1	-0.7	2.1	2.7
Poland	3.0	3.1	3.0	2.3	2.2	3.6	4.5
Romania	5.0	7.1	2.9	5.2	6.0	4.3	3.9
Sweden	1.3	1.9	0.7	2.9	0.8	-0.2	0.5
United Kingdom	0.9	1.5	0.4	0.6	0.3	0.8	0.2
European Union	1.0	1.3	0.6	1.2	0.7	0.9	0.6
United States	1.4	1.6	1.1	1.2	-0.1	.	.
Japan	0.8	1.1	0.4	0.8	-0.3	.	.

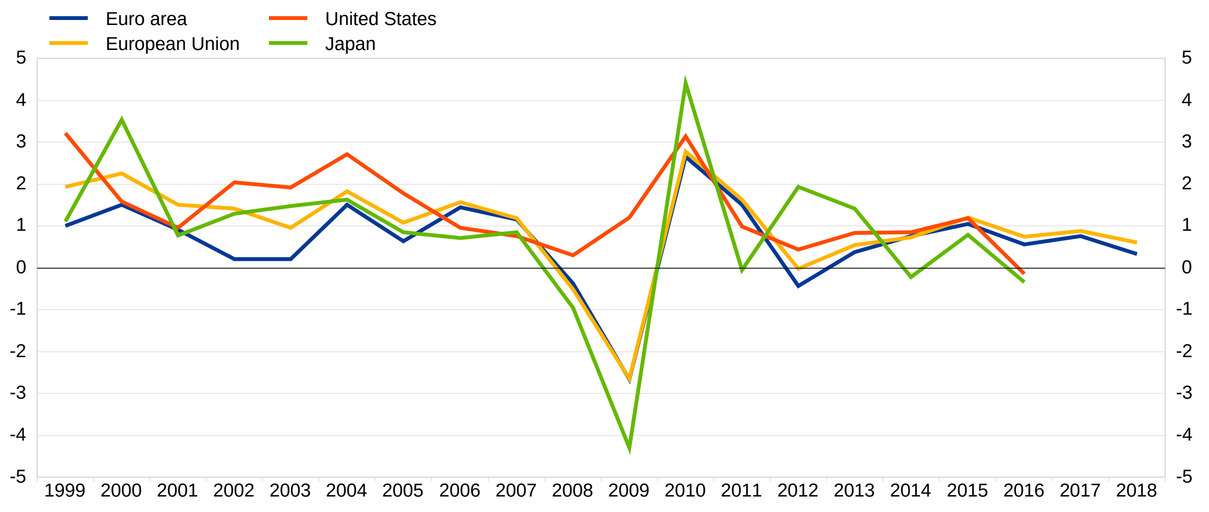
Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

1) Data for Malta and Poland available since 2000.

2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017. However, for the United States and Japan the average refers to the periods 1999-2016 and 2009-2016.

Chart 2.10 Labour productivity

(per person employed; annual percentage changes)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

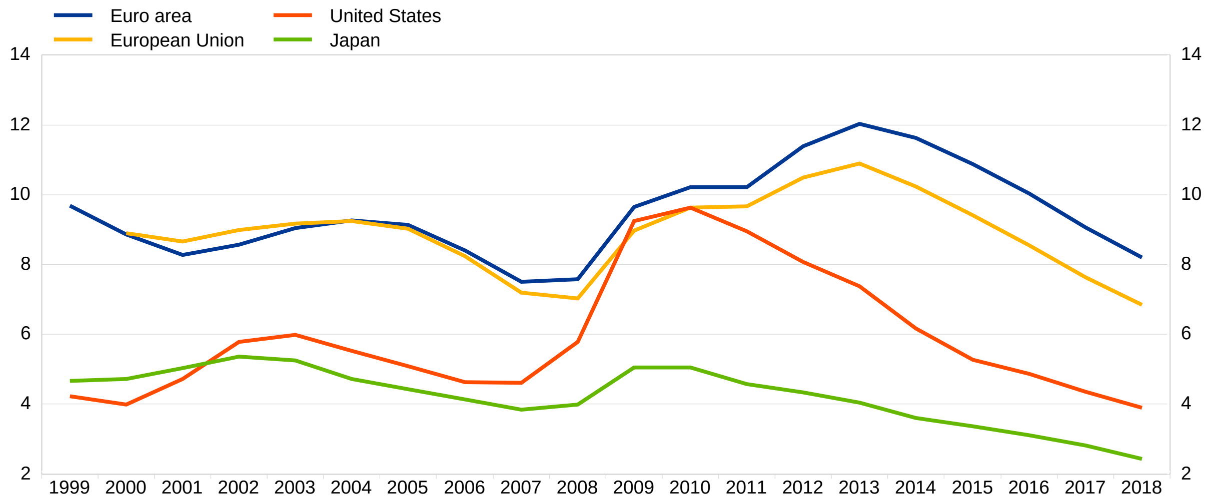
2 Economic activity

2.11 Unemployment
(percentage of the labour force)

	1999-2018 [1), 2)]	1999-2008 [1)]	2009-2018 [1), 2)]	2015	2016	2017	2018
Belgium	7.7	7.7	7.7	8.5	7.8	7.1	5.9
Germany	7.2	9.1	5.2	4.6	4.1	3.8	3.4
Estonia	9.5	9.3	9.7	6.2	6.8	5.8	.
Ireland	8.2	5.0	11.5	10.0	8.4	6.7	5.8
Greece	15.4	10.0	20.8	24.9	23.6	21.5	19.3
Spain	15.8	10.7	20.9	22.1	19.6	17.2	15.3
France	9.3	8.9	9.7	10.4	10.1	9.4	9.1
Italy	9.4	8.2	10.5	11.9	11.7	11.2	10.6
Cyprus	7.9	4.3	11.1	14.9	13.0	11.1	8.4
Latvia	11.8	10.9	12.7	9.9	9.6	8.7	7.4
Lithuania	11.2	11.0	11.3	9.1	7.9	7.1	6.3
Luxembourg	4.6	3.6	5.5	6.5	6.3	5.6	5.3
Malta	6.2	6.9	5.6	5.4	4.7	4.0	3.8
Netherlands	5.0	4.4	5.6	6.9	6.0	4.9	3.8
Austria	5.0	4.7	5.3	5.7	6.0	5.5	4.9
Portugal	9.7	7.3	12.2	12.6	11.2	9.0	7.0
Slovenia	7.0	6.1	7.9	9.0	8.0	6.6	5.4
Slovakia	13.9	16.0	11.8	11.5	9.7	8.1	6.6
Finland	8.4	8.5	8.3	9.4	8.8	8.6	7.4
Euro area	9.5	8.6	10.3	10.9	10.0	9.1	8.2
Bulgaria	10.8	12.4	9.3	9.2	7.6	6.2	5.2
Czech Republic	6.4	7.4	5.5	5.1	4.0	2.9	2.2
Denmark	5.5	4.5	6.5	6.2	6.2	5.7	5.0
Croatia	13.3	13.1	13.4	16.1	13.4	11.1	8.5
Hungary	7.3	6.6	8.1	6.8	5.1	4.2	3.7
Poland	11.7	15.5	7.9	7.5	6.2	4.9	3.9
Romania	6.8	7.2	6.3	6.8	5.9	4.9	4.2
Sweden	7.0	6.5	7.6	7.4	6.9	6.7	6.3
United Kingdom	5.9	5.2	6.6	5.3	4.8	4.4	.
European Union	8.9	8.5	9.2	9.4	8.6	7.6	6.8
United States	5.9	5.0	6.8	5.3	4.9	4.4	3.9
Japan	4.2	4.6	3.8	3.4	3.1	2.8	2.4

Source: Eurostat.
1) Data for Estonia, Cyprus, Malta, Bulgaria, Croatia and the European Union available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

Chart 2.11 Unemployment
(percentage of the labour force)



Source: Eurostat.

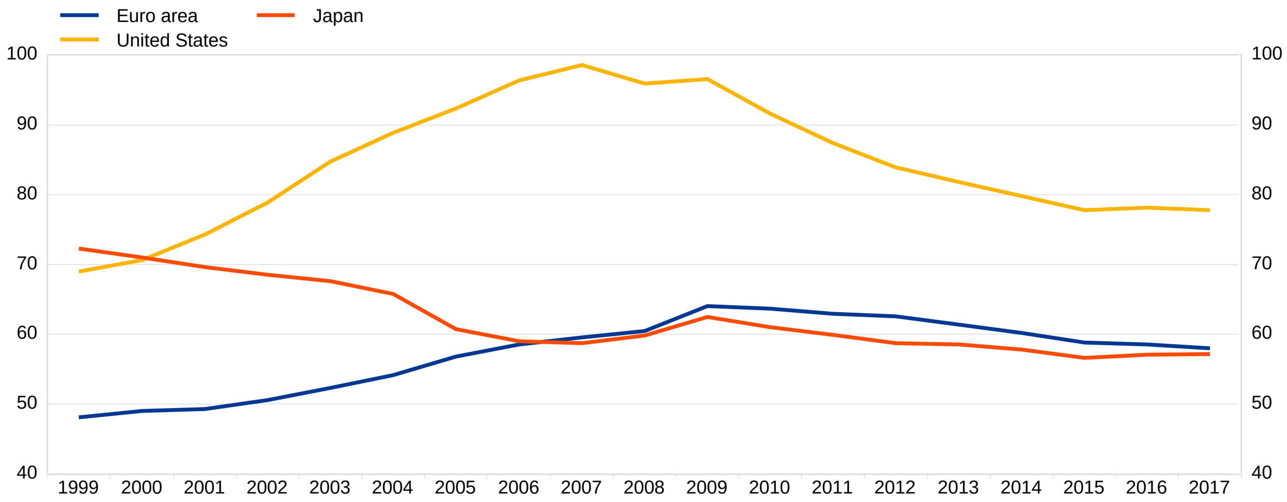
2 Economic activity

2.12 Household debt [1)]
(percentages of GDP)

	1999-2017 [2)]	1999-2008 [2)]	2009-2017	2014	2015	2016	2017
Belgium	49.1	42.5	56.6	58.6	59.2	59.4	60.2
Germany	61.8	67.3	55.8	54.0	53.2	52.9	52.7
Estonia	34.3	25.5	44.0	38.9	39.7	40.1	39.4
Ireland	78.4	72.1	85.3	80.9	56.3	52.6	47.8
Greece	43.7	28.3	60.8	63.1	61.9	60.0	56.2
Spain	68.0	61.7	75.0	73.0	67.9	64.5	61.1
France	47.1	39.6	55.5	55.6	56.1	57.2	58.6
Italy	35.8	29.7	42.7	42.7	41.9	41.3	41.1
Cyprus	100.8	82.4	121.1	130.0	127.7	118.8	107.1
Latvia	33.8	34.5	33.4	26.4	24.5	23.7	22.2
Lithuania	17.6	11.2	24.8	21.5	22.2	22.8	22.4
Luxembourg	52.5	44.3	61.6	61.6	62.7	64.6	66.9
Malta	53.5	48.3	56.4	56.3	52.4	51.0	49.4
Netherlands	106.6	99.8	114.1	112.5	110.6	108.6	105.5
Austria	50.1	48.3	52.0	51.0	50.9	51.4	50.4
Portugal	77.8	72.9	83.2	81.7	76.7	72.1	68.9
Slovenia	24.3	19.1	28.9	28.3	27.6	27.4	27.1
Slovakia	20.3	10.5	31.1	32.6	34.9	38.2	40.8
Finland	52.0	41.2	63.9	65.4	66.6	67.0	67.0
Euro area	57.3	53.9	61.2	60.2	58.8	58.6	58.1
Bulgaria	18.9	12.0	25.7	25.2	23.8	23.2	22.9
Czech Republic	21.9	14.3	30.3	30.4	30.2	31.2	31.6
Denmark	118.9	105.9	133.3	131.1	128.6	127.9	126.6
Croatia	34.4	29.0	39.1	40.0	38.4	35.1	34.1
Hungary	23.3	18.2	28.8	25.5	21.3	20.3	18.8
Poland	28.4	18.7	34.8	35.6	36.0	36.6	34.9
Romania	13.3	7.8	19.3	18.0	17.5	16.7	16.2
Sweden	68.4	56.5	81.7	83.2	83.5	86.2	88.2
United Kingdom	83.1	78.2	88.4	84.7	85.2	86.1	86.0
European Union	-	-	-	-	-	-	-
United States	84.4	85.0	83.9	79.8	77.8	78.1	77.8
Japan	62.3	65.3	58.9	57.9	56.7	57.1	57.2

Sources: ECB, Eurostat, US Bureau of Economic Analysis, Federal Reserve Board and Bank of Japan.
1) Defined as outstanding amounts of loans received by households and non-profit institutions serving households.
2) Data for the European Union are not available. Data for Bulgaria available since 2000; for Croatia and Slovenia since 2001; for Poland since 2003; for Latvia and Malta since 2004.

Chart 2.12 Household debt
(percentages of GDP)



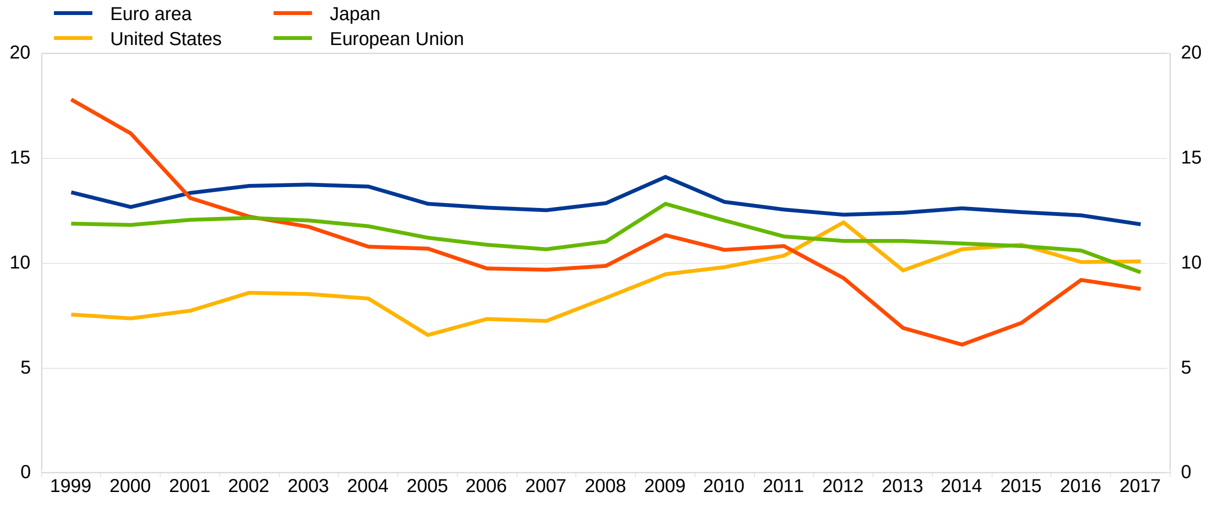
Sources: ECB, Eurostat, US Bureau of Economic Analysis, Federal Reserve Board and Bank of Japan.

2.13 Household savings ratio
(percentages of adjusted disposable income [1]))

	1999-2017 [2),3)]	1999-2008 [2)]	2009-2017 [3)]	2014	2015	2016	2017
Belgium	14.7	16.0	13.2	12.5	11.8	11.3	11.5
Germany	16.4	16.1	16.8	16.8	17.0	17.2	17.3
Estonia	5.8	1.5	10.6	10.7	10.9	10.4	11.6
Ireland	8.5	7.0	10.1	8.0	8.5	8.2	10.8
Greece	2.6	6.7	-2.0	-3.6	-5.2	-6.9	-7.3
Spain	9.4	9.5	9.3	9.3	8.7	7.8	5.5
France	14.3	14.1	14.6	14.3	13.8	13.6	13.9
Italy	12.7	14.3	10.9	11.3	10.6	10.5	9.6
Cyprus	4.3	7.5	0.8	-6.2	-4.5	-3.1	-3.1
Latvia	1.7	1.5	1.9	-1.9	1.7	5.2	3.3
Lithuania	2.4	2.5	2.3	0.2	0.4	0.2	-1.5
Luxembourg	18.3	16.6	20.1	20.6	19.6	19.4	22.0
Malta	-	-	-	-	-	-	-
Netherlands	12.6	10.3	15.1	16.3	15.9	16.3	15.4
Austria	14.7	15.8	13.6	12.8	12.4	13.2	12.4
Portugal	8.3	9.5	7.0	5.2	5.3	5.0	4.7
Slovenia	13.7	15.8	12.7	12.4	12.4	13.0	13.9
Slovakia	7.6	7.9	7.4	7.2	8.7	8.7	8.2
Finland	8.2	8.5	7.8	7.2	6.9	6.1	5.7
Euro area	12.9	13.1	12.6	12.6	12.4	12.3	11.8
Bulgaria	-3.2	-6.2	0.1	0.5	-0.9	-0.3	0.6
Czech Republic	11.4	11.3	11.6	11.8	12.0	11.6	9.5
Denmark	6.9	5.5	8.5	4.2	10.0	10.5	11.8
Croatia	10.3	7.8	12.5	13.2	14.2	14.0	.
Hungary	11.5	11.1	11.8	12.9	11.2	12.8	12.1
Poland	6.0	8.7	3.0	2.3	2.3	4.2	1.9
Romania	-9.0	-8.2	-9.8	-11.2	-10.9	-10.1	-9.2
Sweden	13.1	9.8	16.7	18.8	17.6	18.5	17.6
United Kingdom	8.4	8.2	8.6	8.6	9.4	6.7	4.2
European Union	11.4	11.6	11.1	10.9	10.8	10.6	9.6
United States	9.0	7.8	10.3	10.7	10.9	10.1	10.1
Japan	10.6	12.2	8.9	6.1	7.1	9.2	8.8

Sources: ECB, Eurostat, US Bureau of Economic Analysis, Federal Reserve Board and Bank of Japan.
1) Disposable income adjusted for the change in the net equity of households in pension fund reserves.
2) Data for Malta are not available. Data for Croatia since 2002; for Lithuania since 2004; and for Slovenia since 2005.
3) Where data are not available for 2017, the average indicated is for the periods 1999-2016 and 2009-2016.

Chart 2.13 Household savings
(percentages of adjusted disposable income)



Sources: ECB, Eurostat, US Bureau of Economic Analysis, Federal Reserve Board and Bank of Japan.

2.14 Non-financial corporations' debt 1)

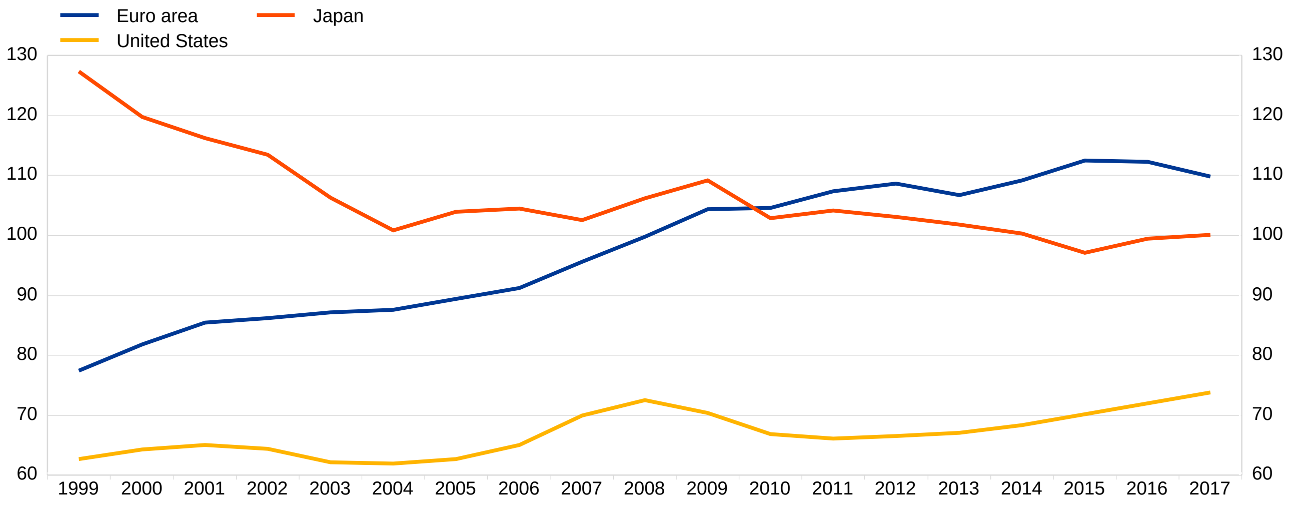
(percentages of GDP)

	1999-2017 2)	1999-2008 2)	2009-2017	2014	2015	2016	2017
Belgium	133.1	114.2	154.0	149.7	152.3	172.8	159.6
Germany	64.3	65.8	62.5	61.2	61.2	60.9	62.2
Estonia	83.3	79.0	88.0	89.2	85.8	81.5	75.2
Ireland	159.4	108.1	216.5	218.7	267.3	248.5	202.8
Greece	56.2	47.5	65.9	67.5	66.0	65.1	61.1
Spain	105.5	94.4	117.9	113.8	106.9	102.1	96.7
France	113.1	101.5	125.9	131.3	136.5	141.5	143.3
Italy	77.4	70.5	85.1	85.6	81.8	79.2	77.1
Cyprus	202.6	193.9	212.3	225.0	228.3	221.9	210.7
Latvia	77.2	66.6	83.0	77.0	77.6	72.9	67.8
Lithuania	43.7	45.6	42.6	36.6	36.9	40.3	41.9
Luxembourg	247.2	173.7	328.9	340.1	352.3	362.9	346.6
Malta	144.8	124.9	155.9	157.0	148.9	143.9	136.8
Netherlands	143.8	126.5	163.1	176.7	176.9	180.1	173.9
Austria	93.0	90.5	95.6	94.8	94.8	95.8	95.3
Portugal	113.3	101.3	126.6	129.1	121.6	113.8	108.5
Slovenia	77.9	71.8	81.2	79.0	67.8	60.9	55.4
Slovakia	48.6	45.4	52.2	52.6	51.5	55.0	59.6
Finland	100.7	89.7	112.9	118.4	124.1	113.6	115.0
Euro area	97.8	88.2	108.4	109.2	112.5	112.3	109.8
Bulgaria	87.4	68.8	105.9	108.8	96.3	91.4	86.2
Czech Republic	52.9	48.0	58.2	63.0	59.2	58.5	56.7
Denmark	86.8	80.5	93.8	90.5	94.4	92.6	88.8
Croatia	82.4	63.7	99.1	100.7	99.5	96.7	94.6
Hungary	70.4	60.6	81.3	80.2	75.4	72.1	67.1
Poland	39.4	33.0	43.7	46.1	47.3	49.6	46.3
Romania	47.8	44.1	51.8	45.1	43.8	40.2	35.8
Sweden	132.6	115.1	152.1	154.0	152.8	147.7	151.8
United Kingdom	120.3	117.7	123.1	124.0	117.6	124.7	121.5
European Union	-	-	-	-	-	-	-
United States(3)	67.0	65.1	69.0	68.3	70.1	72.0	73.9
Japan	106.3	110.1	102.0	100.3	97.1	99.4	100.2

Sources: ECB, Eurostat, US Bureau of Economic Analysis, Federal Reserve Board and Bank of Japan.
1) Defined as outstanding amounts of loans taken, debt securities issued and pension scheme liabilities.
2) Data for the European Union are not available. Data for Bulgaria since 2000; for Croatia since 2001; for Poland since 2003; and for Latvia, Lithuania, Malta and Slovenia since 2004.
3) Figures for the United States do not include inter-company loans and pension scheme liabilities.

Chart 2.14 Non-financial corporations' debt

(percentages of GDP)



Sources: ECB, Eurostat, US Bureau of Economic Analysis, Federal Reserve Board and Bank of Japan.

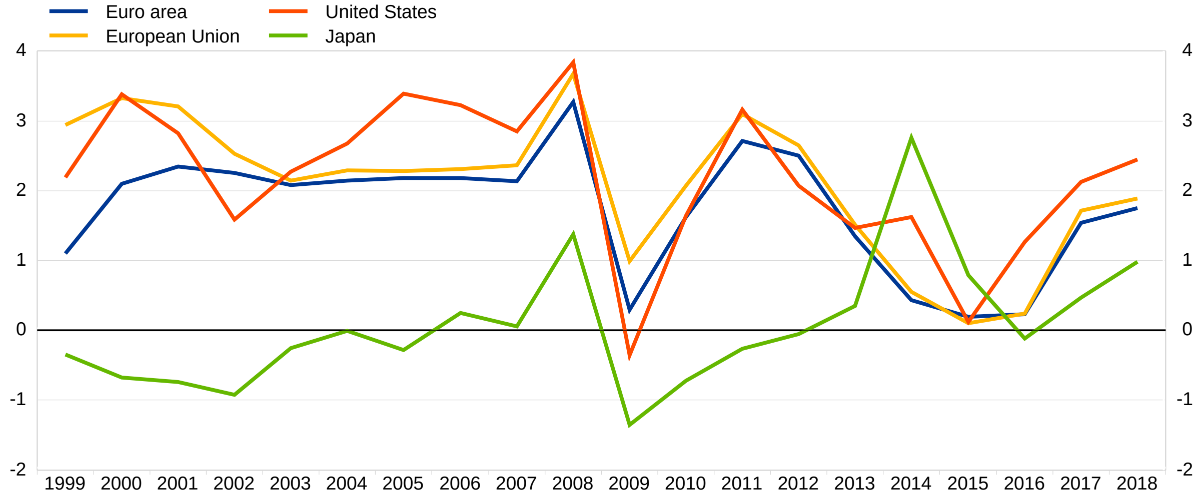
3 Prices and costs

3.1 HICP
(annual percentage changes)

	1999-2018 1)	1999-2008	2009-2018 1)	2015	2016	2017	2018
Belgium	2.0	2.2	1.7	0.6	1.8	2.2	2.3
Germany	1.5	1.7	1.3	0.7	0.4	1.7	1.9
Estonia	3.5	4.6	2.4	0.1	0.8	3.7	3.4
Ireland	1.7	3.4	0.1	0.0	-0.2	0.3	0.7
Greece	2.1	3.3	0.9	-1.1	0.0	1.1	0.8
Spain	2.2	3.2	1.1	-0.6	-0.3	2.0	1.7
France	1.5	1.9	1.2	0.1	0.3	1.2	2.1
Italy	1.8	2.4	1.3	0.1	-0.1	1.3	1.2
Cyprus	1.8	2.7	0.8	-1.5	-1.2	0.7	0.8
Latvia	3.5	5.6	1.5	0.2	0.1	2.9	2.6
Lithuania	2.4	2.7	2.0	-0.7	0.7	3.7	2.5
Luxembourg	2.2	2.8	1.6	0.1	0.0	2.1	2.0
Malta	2.1	2.6	1.6	1.2	0.9	1.3	1.7
Netherlands	1.9	2.4	1.3	0.2	0.1	1.3	1.6
Austria	1.8	1.9	1.8	0.8	1.0	2.2	2.1
Portugal	2.0	2.9	1.1	0.5	0.6	1.6	1.2
Slovenia	3.3	5.5	1.3	-0.8	-0.2	1.6	1.9
Slovakia	3.7	6.2	1.4	-0.3	-0.5	1.4	2.5
Finland	1.7	1.8	1.5	-0.2	0.4	0.8	1.2
Euro area	1.7	2.2	1.3	0.2	0.2	1.5	1.8
Bulgaria	3.9	6.7	1.1	-1.1	-1.3	1.2	2.6
Czech Republic	2.1	2.7	1.5	0.3	0.6	2.4	2.0
Denmark	1.6	2.1	1.1	0.2	0.0	1.1	0.7
Croatia	2.4	3.4	1.3	-0.3	-0.6	1.3	1.6
Hungary	4.6	6.7	2.6	0.1	0.4	2.4	2.9
Poland	2.8	3.9	1.7	-0.7	-0.2	1.6	1.2
Romania	10.9	19.5	2.9	-0.4	-1.1	1.1	4.1
Sweden	1.5	1.7	1.3	0.7	1.1	1.9	2.0
United Kingdom	2.0	1.8	2.3	0.0	0.7	2.7	2.5
European Union	2.1	2.7	1.5	0.0	0.3	1.7	1.9
United States 2)	2.2	2.8	1.6	0.1	1.3	2.1	2.4
Japan 2)	0.1	-0.2	0.3	0.8	-0.1	0.5	1.0

Sources: Eurostat, national data from the BIS databank (for the United States and Japan) and ECB calculations.
1) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.
2) Data refer to the consumer price index.

Chart 3.1 HICP 1)
(annual percentage changes)



Sources: Eurostat, national data from the BIS databank (for the United States and Japan) and ECB calculations.
1) Data for the United States and Japan refer to the consumer price index.

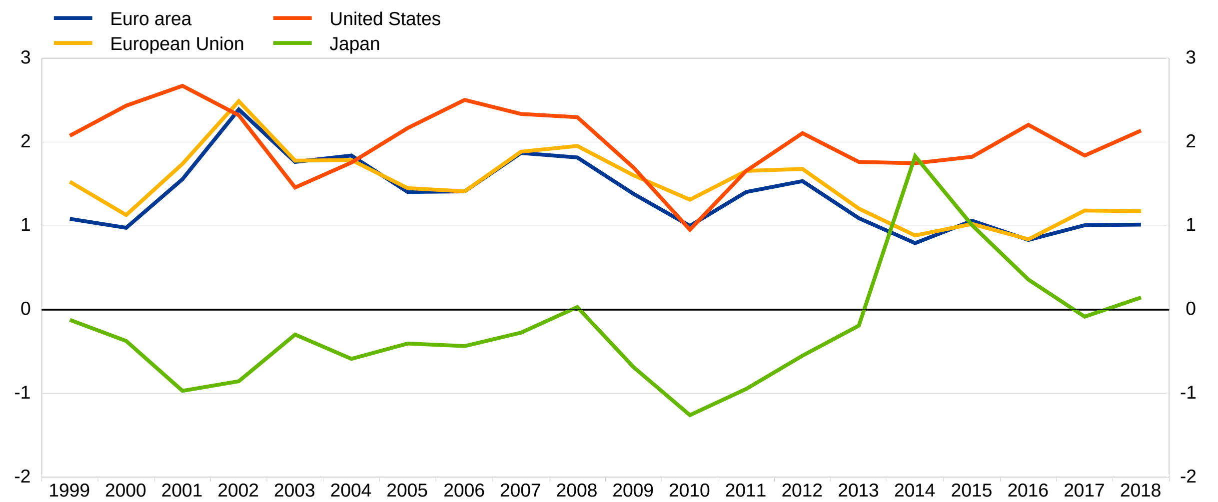
3 Prices and costs

3.2 HICP excluding food and energy
(annual percentage changes)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	1.6	1.5	1.6	1.6	1.8	1.5	1.3
Germany	1.1	1.0	1.2	1.9	1.0	1.3	1.3
Estonia	2.7	3.8	1.6	1.2	1.2	2.0	1.7
Ireland	1.5	3.0	0.0	1.6	0.7	0.2	0.3
Greece	1.6	2.9	0.2	-0.4	0.6	0.3	0.3
Spain	1.8	2.7	0.9	0.3	0.7	1.2	1.0
France	1.2	1.4	0.9	0.6	0.6	0.5	0.9
Italy	1.7	2.1	1.2	0.7	0.5	0.8	0.6
Cyprus	0.8	1.3	0.4	-0.4	-0.8	0.4	0.1
Latvia	2.4	4.3	0.6	1.5	1.2	1.7	1.9
Lithuania	1.5	1.7	1.3	1.9	1.7	2.6	1.9
Luxembourg	1.8	1.9	1.6	1.7	1.0	1.4	0.9
Malta	1.6	2.1	1.2	1.5	1.0	0.9	1.7
Netherlands	1.6	1.9	1.3	0.9	0.6	0.8	1.0
Austria	1.7	1.5	1.9	1.7	1.6	2.1	1.8
Portugal	1.8	2.7	0.8	0.6	0.9	1.2	0.8
Slovenia	2.7	4.9	0.6	0.3	0.7	0.7	1.0
Slovakia	3.2	5.1	1.4	0.5	0.9	1.4	2.0
Finland	1.4	1.5	1.4	0.8	1.1	0.6	0.3
Euro area	1.4	1.6	1.1	1.1	0.8	1.0	1.0
Bulgaria	3.5	6.5	0.6	-0.6	-1.0	-0.5	2.1
Czech Republic	1.3	2.0	0.8	0.7	1.2	1.9	1.8
Denmark	1.4	1.8	1.0	1.2	0.5	0.7	0.5
Croatia	1.4	3.2	0.8	0.8	0.2	1.0	1.0
Hungary	3.1	4.3	2.2	1.7	1.5	1.4	1.6
Poland	2.3	3.5	1.0	0.5	0.2	0.7	0.2
Romania	5.2	9.3	2.5	1.6	0.0	0.2	2.2
Sweden	1.1	1.1	1.0	0.9	1.2	1.4	1.0
United Kingdom	1.5	1.1	2.0	1.0	1.2	2.3	2.1
European Union	1.5	1.7	1.3	0.9	0.9	1.2	1.2
United States 3)	2.0	2.4	1.8	1.8	2.2	1.8	2.1
Japan 3)	-0.2	-0.2	0.0	1.0	0.4	-0.1	0.1

Sources: Eurostat, national data from the BIS databank (for the United States and Japan) and ECB calculations.
1) Data for Slovenia and Czech Republic available since 2001; for Hungary and Romania since 2002; and for Croatia since 2006.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.
3) Data refer to the consumer price index.

Chart 3.2 HICP excluding food and energy 1)
(annual percentage changes)



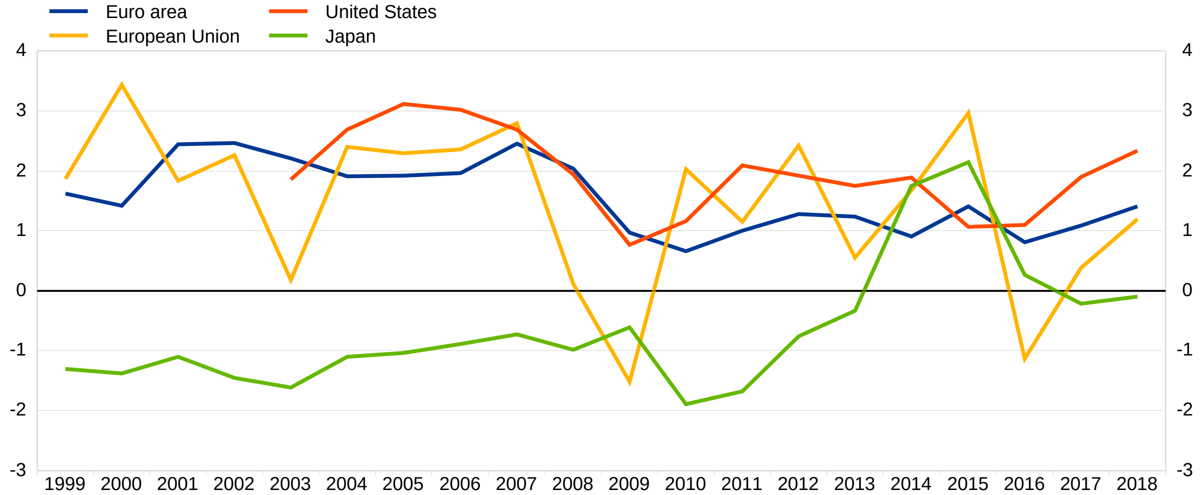
Sources: Eurostat, national data from the BIS databank (for the United States and Japan) and ECB calculations.
1) Data for the United States and Japan refer to the consumer price index.

3.3 GDP deflator
(annual percentage changes)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	1.6	1.9	1.4	1.0	1.8	1.7	1.2
Germany	1.2	0.8	1.6	2.0	1.4	1.5	1.9
Estonia	4.7	6.5	2.8	1.0	1.5	3.9	4.6
Ireland	1.8	3.5	0.2	7.4	-0.8	0.4	1.5
Greece	1.6	3.2	0.0	-0.3	-0.2	0.6	0.5
Spain	1.9	3.6	0.4	0.5	0.3	1.2	0.9
France	1.3	1.8	0.8	1.1	0.2	0.7	1.0
Italy	1.7	2.4	1.1	0.9	1.2	0.4	0.8
Cyprus	1.8	3.1	0.4	-1.2	-0.6	1.7	1.6
Latvia	4.4	7.8	1.0	0.0	0.9	3.2	4.2
Lithuania	2.6	3.3	1.9	0.3	1.4	4.3	3.4
Luxembourg	2.7	3.2	2.2	-0.4	0.9	2.2	.
Malta	2.5	2.5	2.4	2.6	1.4	2.5	2.2
Netherlands	1.7	2.5	0.9	0.8	0.5	1.2	2.2
Austria	1.7	1.6	1.7	2.2	1.4	1.3	1.6
Portugal	2.1	3.2	1.1	2.0	1.8	1.5	1.4
Slovenia	3.1	4.9	1.2	1.0	0.8	1.6	2.3
Slovakia	2.5	4.6	0.5	-0.2	-0.5	1.2	2.1
Finland	1.6	1.5	1.7	1.7	0.1	0.9	1.9
Euro area	1.6	2.0	1.1	1.4	0.8	1.1	1.4
Bulgaria	4.2	6.0	2.4	2.2	2.2	3.4	3.6
Czech Republic	1.8	2.4	1.3	1.2	1.3	1.4	2.3
Denmark	1.8	2.5	1.2	0.4	0.7	1.4	0.5
Croatia	2.5	4.1	1.0	0.0	-0.1	1.1	1.7
Hungary	4.7	6.4	2.9	1.9	0.9	3.8	4.5
Poland	2.5	3.5	1.6	0.8	0.3	2.0	0.9
Romania	13.3	23.9	3.6	2.6	2.5	4.7	5.5
Sweden	1.7	1.8	1.7	2.1	1.6	2.3	2.2
United Kingdom	1.9	2.2	1.7	0.4	2.1	2.2	1.7
European Union	1.5	2.0	1.0	3.0	-1.1	0.4	1.2
United States	2.0	2.6	1.6	1.1	1.1	1.9	2.3
Japan	-0.7	-1.2	-0.2	2.1	0.3	-0.2	-0.1

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) Data for Malta available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

Chart 3.3 GDP deflator
(annual percentage changes)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

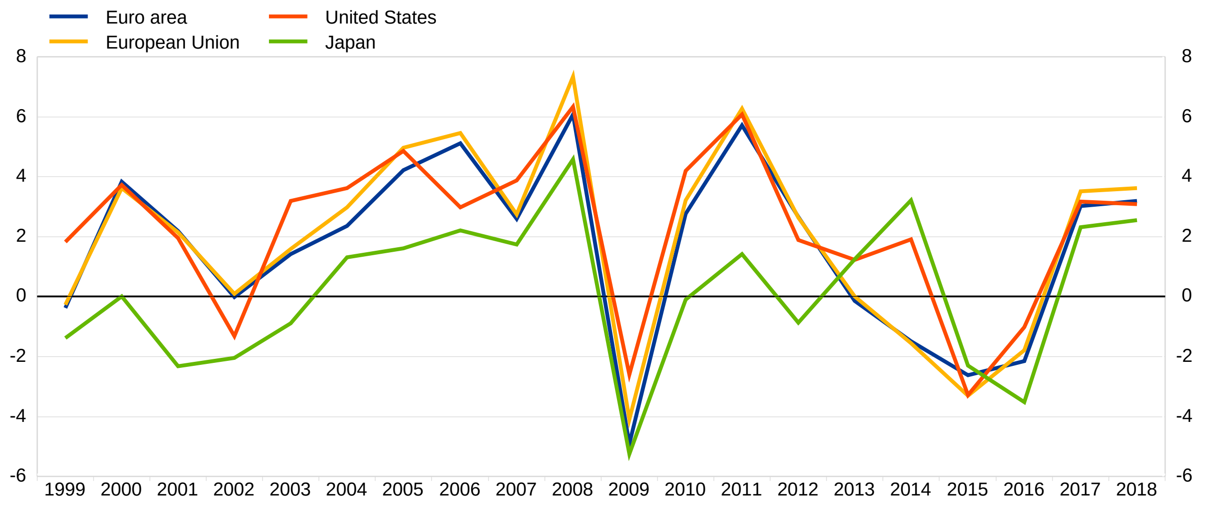
3 Prices and costs

3.4 Industrial producer prices
(annual percentage changes; domestic sales only)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	2.5	3.8	1.4	-4.2	-1.8	8.9	7.1
Germany	1.4	2.4	0.5	-1.7	-1.6	2.4	2.6
Estonia	3.1	4.7	2.2	-2.8	-2.1	3.3	7.1
Ireland	1.1	4.0	0.2	-4.3	0.4	-0.4	-1.9
Greece	2.5	4.9	0.6	-5.8	-5.4	4.2	3.3
Spain	2.3	3.3	1.2	-2.0	-3.1	4.4	3.0
France	1.4	2.4	0.5	-2.2	-2.3	2.4	2.7
Italy	1.6	3.1	0.4	-3.4	-2.2	2.6	3.9
Cyprus	2.5	4.8	0.6	-5.7	-4.7	3.7	3.0
Latvia	4.3	8.4	1.6	-1.4	-3.3	2.2	5.5
Lithuania	2.5	4.8	0.1	-9.1	-3.5	4.0	4.2
Luxembourg	2.3	6.4	-0.8	-0.5	-2.5	-1.9	0.6
Malta	3.6	5.2	2.3	-3.2	-0.1	0.9	0.9
Netherlands	1.9	4.5	-0.2	-4.4	-2.5	4.4	3.1
Austria	1.1	1.9	0.5	-2.1	-2.5	1.9	3.0
Portugal	1.8	2.9	0.8	-4.2	-1.8	3.6	3.0
Slovenia	2.4	4.6	0.7	-0.5	-1.4	1.3	1.9
Slovakia	1.9	5.0	-0.5	-4.2	-4.3	2.0	5.0
Finland	1.8	2.6	1.1	-2.2	-1.5	2.7	3.9
Euro area	1.6	2.7	0.6	-2.6	-2.1	3.0	3.2
Bulgaria	3.8	6.3	1.7	-1.7	-2.8	4.2	4.1
Czech Republic	1.4	2.6	0.3	-3.2	-3.3	1.8	2.0
Denmark	3.0	5.6	1.0	-6.5	-1.5	3.3	6.4
Croatia	1.9	3.0	1.1	-3.8	-3.9	2.1	2.4
Hungary	4.4	7.4	2.1	-3.1	-3.1	4.6	6.2
Poland	2.6	3.4	2.0	-2.3	0.0	4.8	2.8
Romania	9.1	18.0	2.5	-1.8	-2.6	3.1	5.2
Sweden	2.1	3.1	1.1	-1.0	0.0	4.1	5.5
United Kingdom	2.9	4.3	1.6	-7.6	-0.3	6.3	5.7
European Union	1.9	3.0	0.8	-3.3	-1.8	3.5	3.6
United States 3)	2.3	3.1	1.4	-3.3	-1.0	3.2	3.1
Japan 4)	0.1	0.5	-0.2	-2.3	-3.5	2.3	2.5

Sources: Eurostat, national data from the BIS databank (for the United States and Japan) and ECB calculations.
1) Data for Austria, Belgium, Cyprus, Greece, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovenia, Slovakia, Bulgaria, Denmark, Croatia, Hungary, Poland and Romania available since 2001; for Latvia since 2002; for Estonia since 2003; and for Ireland since 2006.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.
3) Data refer to finished goods.
4) Data refer to the output price index in the manufacturing sector.

Chart 3.4 Industrial producer prices 1)
(annual percentage changes; domestic sales only)



Sources: Eurostat, national data from the BIS databank (for the United States and Japan) and ECB calculations.
1) Data for the United States refer to finished goods; data for Japan refer to the output price index in the manufacturing sector.

3 Prices and costs

3.5 Unit labour costs

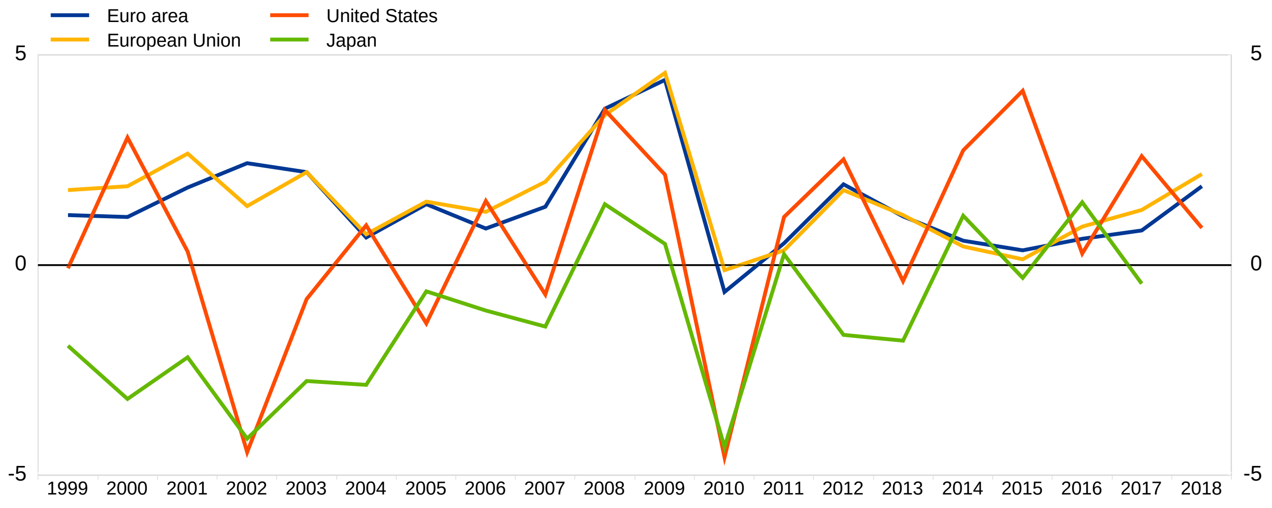
(annual percentage changes)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	1.6	1.8	1.4	-0.8	0.3	1.6	1.8
Germany	1.1	0.2	2.0	1.9	1.3	1.8	2.8
Estonia	4.9	7.0	2.8	4.3	3.0	4.7	6.0
Ireland	-0.1	3.9	-4.0	-15.2	0.9	-3.2	-0.1
Greece	1.6	3.6	-0.4	-1.3	-0.3	0.6	1.1
Spain	1.5	3.3	-0.3	0.6	-0.7	0.2	1.1
France	1.5	1.8	1.2	0.2	0.4	0.8	1.3
Italy	1.9	2.7	1.1	0.7	0.7	-0.3	2.0
Cyprus	1.4	2.9	-0.1	-1.7	-1.4	0.6	0.3
Latvia	4.8	8.8	1.0	6.1	4.8	3.1	4.6
Lithuania	2.4	2.8	2.0	5.1	6.4	3.8	5.2
Luxembourg	2.9	3.3	2.5	0.3	1.5	5.2	.
Malta	2.1	2.6	1.6	-0.8	1.5	0.8	0.8
Netherlands	1.5	2.0	1.0	-1.3	0.6	0.5	.
Austria	1.4	1.0	1.9	1.4	1.6	0.6	1.5
Portugal	1.4	2.6	0.2	0.0	1.4	2.1	2.4
Slovenia	3.0	4.6	1.4	0.3	1.8	1.3	2.5
Slovakia	2.7	3.6	1.8	1.3	1.3	4.2	3.3
Finland	1.5	1.6	1.5	0.8	-1.2	-2.7	1.7
Euro area	1.4	1.7	1.2	0.3	0.6	0.8	1.9
Bulgaria	5.2	5.5	4.9	2.5	2.3	8.4	2.4
Czech Republic	2.4	2.8	1.9	-0.8	3.1	3.6	6.1
Denmark	1.9	2.7	1.1	0.8	0.6	1.1	2.6
Croatia	1.5	3.4	-0.6	-0.8	-1.8	-1.8	.
Hungary	4.2	6.1	2.3	-2.6	5.2	4.1	6.7
Poland	1.2	1.2	1.3	-0.6	2.5	2.6	.
Romania	11.9	20.9	3.6	-3.1	8.5	8.0	13.1
Sweden	2.0	2.2	1.9	-0.2	1.7	2.2	2.9
United Kingdom	2.3	2.8	1.8	0.5	2.5	2.2	2.3
European Union	1.6	1.9	1.3	0.1	0.9	1.3	2.2
United States	0.7	0.2	1.1	4.2	0.3	2.6	0.9
Japan	-1.3	-1.9	-0.6	-0.3	1.5	-0.4	.

Sources: Eurostat, national data from the BIS databank (for the United States), OECD (for Japan) and ECB calculations.
1) Data for Malta and Poland available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

Chart 3.5 Unit labour costs

(annual percentage changes)



Sources: Eurostat, national data from the BIS databank (for the United States), OECD (for Japan) and ECB calculations.

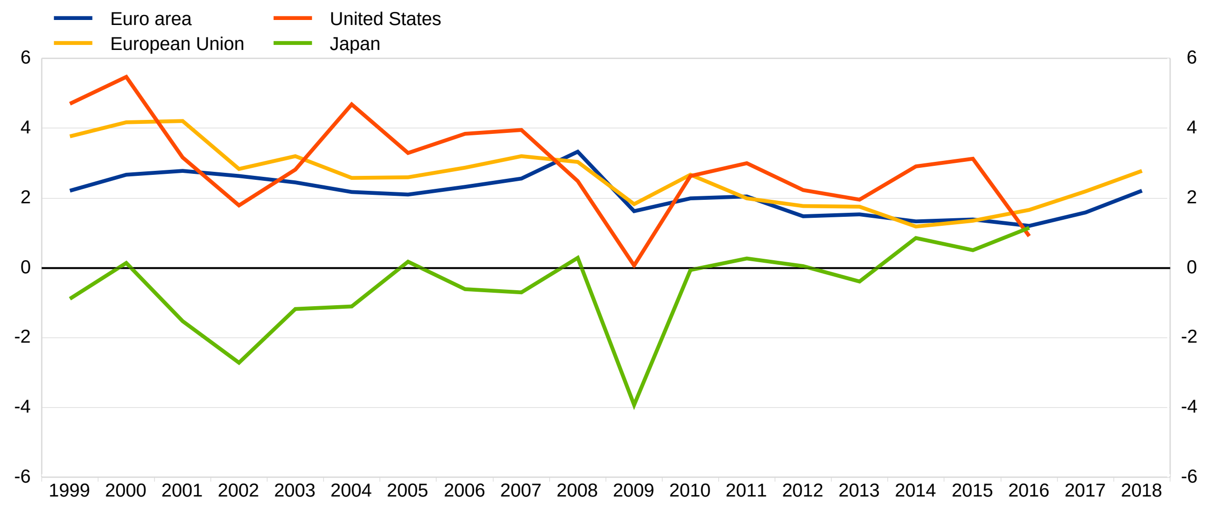
3 Prices and costs

3.6 Compensation per employee
(annual percentage changes)

	1999-2018 1),2)	1999-2008 1)	2009-2018 2)	2015	2016	2017	2018
Belgium	2.3	2.9	1.7	0.0	0.5	1.9	2.0
Germany	1.7	1.2	2.3	2.7	2.2	2.6	3.0
Estonia	8.4	12.4	4.4	3.3	6.2	6.9	8.8
Ireland	3.1	5.7	0.6	2.4	2.1	0.7	3.3
Greece	2.1	6.0	-1.7	-2.4	-0.9	0.5	1.3
Spain	2.1	3.5	0.8	1.4	-0.2	0.6	1.5
France	2.3	2.8	1.8	1.1	0.8	1.7	1.9
Italy	1.7	2.6	0.7	1.0	0.5	0.1	2.0
Cyprus	2.2	4.5	-0.1	-1.3	-1.1	0.7	0.1
Latvia	9.2	15.1	3.5	7.7	7.3	8.0	7.8
Lithuania	6.7	9.6	3.9	5.9	6.7	8.7	7.7
Luxembourg	3.0	3.7	2.1	1.6	0.9	3.3	.
Malta	3.3	4.2	2.5	5.5	2.9	-0.3	1.6
Netherlands	2.4	3.2	1.4	-0.3	1.7	1.2	.
Austria	2.1	2.3	2.0	1.9	2.4	1.5	2.5
Portugal	2.2	3.8	0.7	0.4	1.7	1.6	2.2
Slovenia	4.9	7.9	2.0	1.3	3.0	3.2	4.0
Slovakia	5.8	8.3	3.3	3.5	2.1	5.2	5.4
Finland	2.4	3.3	1.5	1.4	1.1	-1.2	1.2
Euro area	2.1	2.5	1.6	1.4	1.2	1.6	2.2
Bulgaria	8.2	9.1	7.4	5.6	5.8	10.5	5.6
Czech Republic	4.8	6.5	3.0	3.0	4.0	6.4	7.6
Denmark	2.8	3.6	1.9	1.7	1.5	1.7	2.0
Croatia	3.0	5.9	0.0	0.4	1.3	-1.1	.
Hungary	6.1	9.6	2.6	-1.5	4.4	6.2	9.6
Poland	4.2	4.3	4.2	1.7	4.8	6.3	.
Romania	17.5	29.5	6.6	1.9	15.0	12.6	17.5
Sweden	3.4	4.1	2.6	2.7	2.5	2.0	3.4
United Kingdom	3.2	4.3	2.1	1.1	2.8	3.1	2.6
European Union	2.6	3.2	1.9	1.3	1.7	2.2	2.8
United States	2.9	3.6	2.1	3.1	0.9	.	.
Japan	-0.5	-0.8	-0.2	0.5	1.2	.	.

Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.
1) Data for Poland available since 2000.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017. However, for the United States and Japan the average refers to the periods 1999-2016 and 2009-2016.

Chart 3.6 Compensation per employee
(annual percentage changes)



Sources: Eurostat, OECD (for the United States and Japan) and ECB calculations.

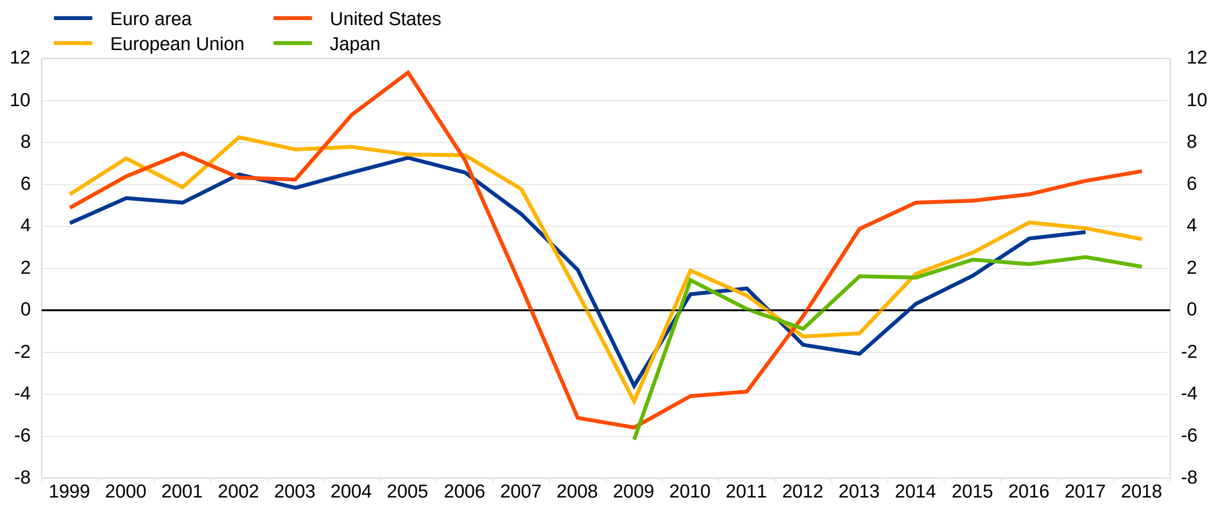
3 Prices and costs

3.7 Residential property prices
(annual percentage changes)

	1999-2018 [1),2)]	1999-2008 [1)]	2009-2018 [2)]	2015	2016	2017	2018
Belgium	5.1	7.8	2.3	2.0	1.6	3.8	.
Germany	2.8	1.5	3.5	4.6	6.0	5.8	7.7
Estonia	5.4	17.7	1.5	6.9	4.7	5.5	.
Ireland	-0.8	4.7	-2.6	11.5	7.5	10.9	.
Greece	1.5	8.6	-5.2	-5.0	-2.4	-1.0	1.5
Spain	3.8	10.5	-3.1	3.6	4.7	6.2	.
France	4.9	9.3	0.1	-1.9	0.9	3.0	.
Italy	1.9	5.6	-2.1	-3.8	0.2	-1.1	.
Cyprus	3.4	15.3	-3.9	-4.3	-1.4	1.1	.
Latvia	1.1	17.4	-2.2	-3.4	8.5	8.8	.
Lithuania	1.8	17.3	-1.4	3.7	5.4	8.9	.
Luxembourg	4.2	3.4	4.3	5.4	5.9	5.6	.
Malta	5.5	17.2	1.8	5.8	5.4	5.3	.
Netherlands	3.8	7.4	0.3	2.9	5.0	7.6	9.0
Austria	3.1	1.0	5.5	4.2	7.3	3.8	.
Portugal	0.9	-	0.9	3.1	7.1	9.2	.
Slovenia	2.2	14.4	-1.6	0.8	3.3	8.0	.
Slovakia	3.9	20.9	-1.2	0.9	4.3	6.3	.
Finland	2.3	4.1	1.7	0.0	0.5	1.6	.
Euro area	3.0	5.4	0.4	1.7	3.4	3.7	.
Bulgaria	3.2	22.7	-2.6	2.8	7.0	8.7	.
Czech Republic	1.9	-	1.9	4.0	7.2	11.7	.
Denmark	4.1	10.0	1.0	7.0	5.2	4.5	.
Croatia	3.5	-	-1.9	-2.9	0.9	3.8	.
Hungary	2.0	2.4	1.9	13.1	13.4	5.9	.
Poland	0.0	-	0.0	1.5	1.9	3.9	.
Romania	-1.7	-	-1.7	2.9	6.0	6.0	.
Sweden	7.5	8.5	6.3	13.1	8.6	6.4	.
United Kingdom	6.1	9.5	2.5	6.0	7.0	4.5	3.3
European Union	3.7	6.4	0.9	2.8	4.2	3.9	.
United States	3.4	5.4	1.3	5.2	5.5	6.2	6.6
Japan	1.4	-	1.4	2.4	2.2	2.5	.

Sources: National sources and ECB.
1) Data for Cyprus and Denmark available since 2002; for Germany since 2003; for Estonia, Ireland, Spain, Malta, Finland, Slovakia and Bulgaria since 2005; for Latvia since 2006; for Luxembourg and Slovenia since 2007; for Portugal, the Czech Republic, Croatia and Japan since 2008; for Romania since 2009; and for Poland since 2010.
2) Where data are not available for 2018, the average indicated is for the periods 1999-2017 and 2009-2017.

Chart 3.7 Residential property prices
(annual percentage changes)



Sources: National sources and ECB.

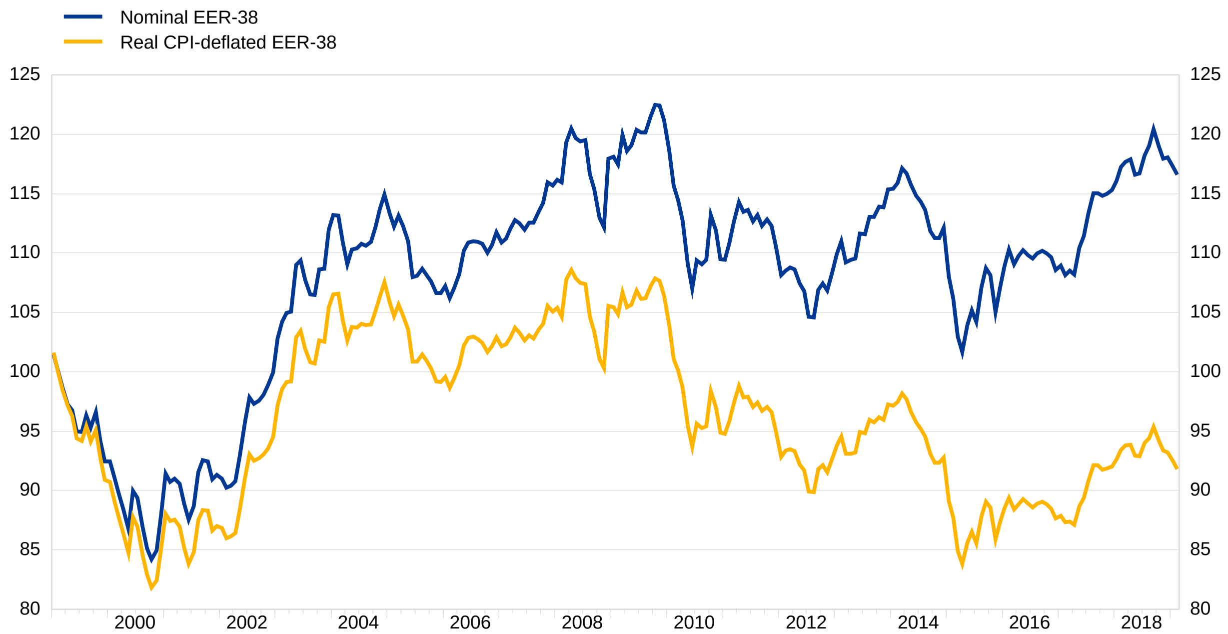
4 Exchange rates and balance of payments

4.1 Effective exchange rates of the euro
(period averages; index: 1999 Q1=100)

	1999-2018	1999-2008	2009-2018	2015	2016	2017	2018
EER-19							
Nominal	99.4	98.8	99.9	91.7	94.4	96.6	98.9
Real CPI	97.3	98.6	96.0	87.5	89.4	91.3	93.3
Real PPI	96.9	98.6	95.3	88.6	90.9	92.0	93.5
Real GDP deflator	94.0	96.8	90.9	82.9	85.1	86.0	
Real ULCM (1)	96.6	97.1	96.1	81.3	79.4	78.8	
Real ULCT	97.1	97.2	97.0	88.4	89.1	89.9	
EER-38							
Nominal	108.0	103.8	112.3	105.7	109.7	112.0	117.9
Real CPI	96.0	97.7	94.2	86.8	88.7	89.9	93.7

Source: ECB.
1) ULCM-deflated series are available only for the EER-18 trading partner group.

Chart 4.1 Effective exchange rates of the euro
(monthly averages; index: 1999 Q1=100)



Source: ECB.

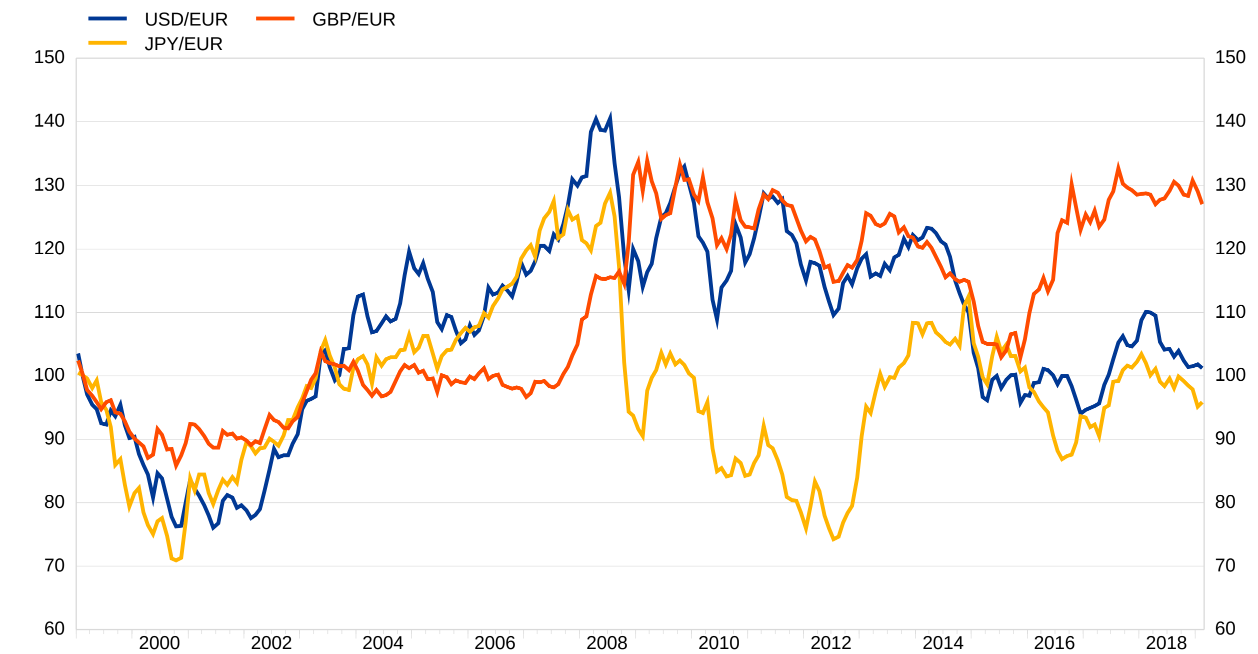
4 Exchange rates and balance of payments

4.2 Bilateral exchange rates of the euro
(units of national currency per euro; period averages)

	1999-2018 [1)]	1999-2008 [1)]	2009-2018	2015	2016	2017	2018
Chinese renminbi	8.748	9.468	8.171	6.973	7.352	7.629	7.808
Croatian kuna	7.449	7.406	7.483	7.614	7.533	7.464	7.418
Czech koruna	28.659	31.193	26.126	27.279	27.034	26.326	25.647
Danish krone	7.448	7.446	7.450	7.459	7.445	7.439	7.453
Hungarian forint	275.617	253.282	297.953	309.996	311.438	309.193	318.890
Japanese yen	127.557	130.952	124.161	134.314	120.197	126.711	130.396
Polish zloty	4.099	3.991	4.208	4.184	4.363	4.257	4.261
Pound sterling	0.756	0.674	0.839	0.726	0.819	0.877	0.885
Romanian leu	3.775	3.132	4.417	4.445	4.490	4.569	4.654
Swedish krona	9.284	9.132	9.436	9.353	9.469	9.635	10.258
Swiss franc	1.388	1.555	1.220	1.068	1.090	1.112	1.155
US dollar	1.206	1.155	1.258	1.110	1.107	1.130	1.181

Source: ECB.
1) Data for Chinese renminbi and Croatian kuna available since 2001.

Chart 4.2 Bilateral exchange rates
(monthly averages; index: 1999 Q1=100)



Source: ECB.

4 Exchange rates and balance of payments

4.3 Real effective exchange rates 1)

(deflated by consumer price indices; period averages; index: 1999 Q1 = 100)

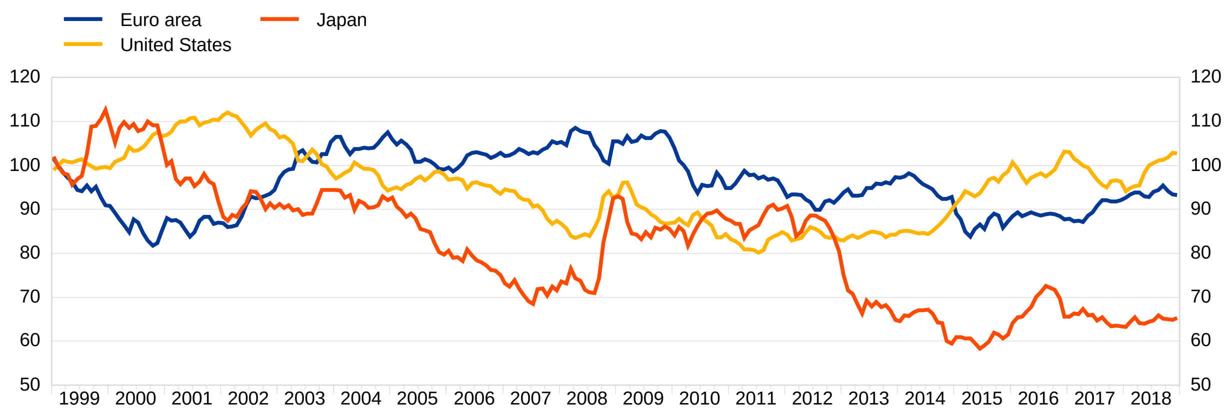
	1999-2018	1999-2008	2009-2018	2015	2016	2017	2018
Belgium	99.8	99.2	100.4	96.2	98.6	100.0	102.8
Germany	92.6	95.2	95.2	85.7	86.8	87.6	89.8
Estonia	115.7	106.5	124.9	124.1	126.1	128.2	132.9
Ireland	107.4	108.9	105.9	98.2	99.3	99.6	100.7
Greece	100.1	99.3	101.0	94.8	95.8	96.3	97.2
Spain	106.0	104.8	107.1	102.4	102.9	104.1	106.8
France	95.8	97.6	94.0	89.9	90.8	91.2	93.3
Italy	99.4	100.2	98.6	94.6	95.3	95.7	97.8
Cyprus	104.1	104.1	104.2	99.7	99.7	99.9	100.2
Latvia	109.8	104.7	114.8	112.5	113.6	113.9	116.7
Lithuania	122.9	115.7	130.1	127.0	129.3	130.8	134.5
Luxembourg	106.1	104.4	107.8	104.4	105.0	106.2	107.8
Malta	105.9	105.1	106.7	101.7	103.8	104.8	107.9
Netherlands	100.8	102.5	99.1	94.6	95.5	96.2	98.1
Austria	96.5	97.0	95.9	94.0	95.4	96.4	98.4
Portugal	102.5	103.1	101.9	98.7	100.0	100.4	102.3
Slovenia	99.8	99.4	100.3	97.2	97.7	98.1	99.9
Slovakia	164.9	139.3	190.5	186.5	186.7	186.3	189.7
Finland	95.9	96.9	94.9	93.0	94.0	93.4	95.3
Euro area	96.0	97.7	94.2	86.8	88.7	89.9	93.7
Bulgaria	133.9	121.0	146.8	140.3	139.8	140.7	145.3
Czech Republic	134.2	122.6	145.8	134.3	137.8	143.7	150.1
Denmark	98.4	99.5	97.4	93.4	94.4	94.8	95.9
Croatia	104.8	103.8	105.9	101.6	102.7	103.8	105.6
Hungary	128.8	125.4	132.2	123.7	124.7	127.3	126.7
Poland	116.7	117.4	116.0	112.8	108.8	112.1	113.4
Romania	133.3	127.6	139.1	137.6	136.0	133.8	136.8
Sweden	92.3	95.3	89.4	85.5	86.3	85.6	82.1
United Kingdom	88.7	97.9	79.5	88.1	79.0	74.9	76.5
European Union	-	-	-	-	-	-	-
United States	95.0	99.4	90.5	95.1	98.8	98.3	99.1
Japan	81.7	89.4	74.0	60.4	68.5	65.2	64.7

Source: ECB.

1) For the euro area as a whole, the real effective exchange rate of the euro vis-à-vis 38 trading partners is displayed.
For individual euro area countries, harmonised competitiveness indicators are calculated vis-à-vis these same trading partners plus the other euro area countries.
For non-euro area countries, the real effective exchange rate of the national currency is calculated vis-à-vis 38 trading partners (including the euro area).

Chart 4.3 Real effective exchange rates

(vis-à-vis 38 trading partners; deflated by consumer price indices; monthly averages; index: 1999 Q1=100)



Source: ECB.

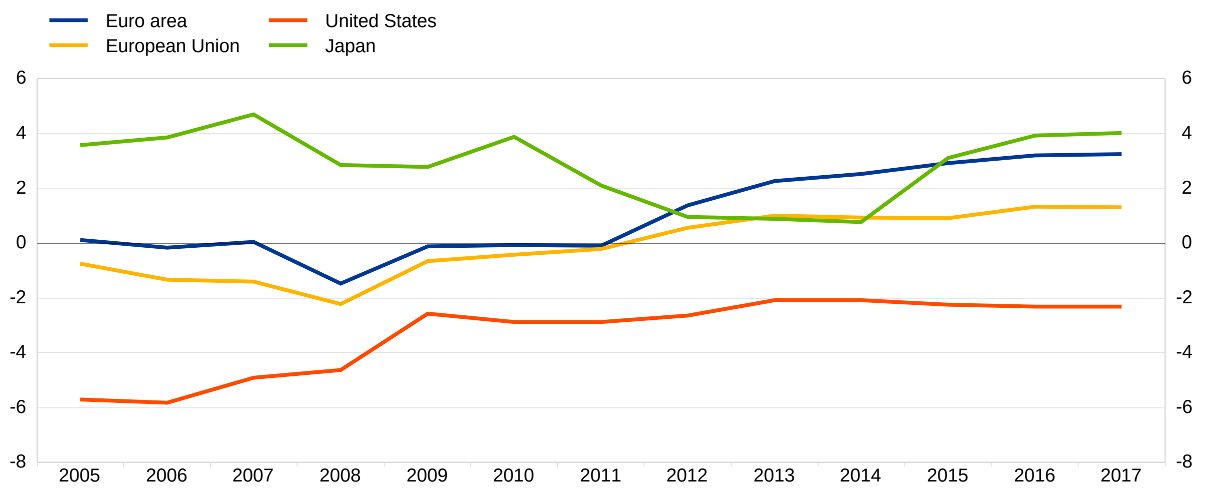
4 Exchange rates and balance of payments

4.4 Balance of payments: net current account
(percentages of nominal GDP; period averages; non-working day and non-seasonally adjusted)

	2005-2017	2005-2011	2012-2017	2014	2015	2016	2017
Belgium	0.2	0.7	-0.4	-0.9	-1.0	-0.6	0.7
Germany	6.7	5.7	7.8	7.5	8.9	8.5	8.0
Estonia	-2.7	-6.0	1.1	0.8	1.8	2.0	3.2
Ireland	-2.2	-5.3	1.3	1.1	4.4	-4.2	8.5
Greece	-7.4	-12.1	-2.0	-1.6	-0.8	-1.7	-1.8
Spain	-3.0	-6.7	1.3	1.1	1.2	2.3	1.8
France	-0.5	-0.4	-0.7	-1.0	-0.4	-0.8	-0.6
Italy	-0.4	-2.1	1.6	1.9	1.5	2.5	2.8
Cyprus[1)]	-6.9	-9.6	-5.0	-4.3	-1.5	-5.1	-8.4
Latvia	-5.0	-8.4	-1.0	-1.7	-0.5	1.6	0.7
Lithuania	-3.9	-7.4	0.1	3.2	-2.3	-0.8	0.9
Luxembourg	6.9	8.3	5.2	5.2	5.1	5.1	4.9
Malta	-1.3	-5.6	3.6	5.8	2.3	3.4	10.4
Netherlands	7.9	7.0	8.9	8.5	6.3	8.1	10.5
Austria	2.5	3.0	2.0	2.5	1.7	2.5	2.0
Portugal	-5.2	-9.9	0.2	0.1	0.1	0.6	0.5
Slovenia	1.2	-1.9	4.9	5.8	4.5	5.5	7.2
Slovakia	-3.7	-6.5	-0.3	1.1	-1.7	-2.2	-2.0
Finland	0.4	1.9	-1.4	-1.8	-0.7	-0.7	-0.7
Euro area	1.1	-0.3	2.6	2.5	2.9	3.2	3.2
Bulgaria	-5.7	-12.0	1.8	1.2	0.0	2.6	6.5
Czech Republic	-1.4	-2.8	0.2	0.2	0.2	1.6	1.0
Denmark	5.8	4.1	7.8	8.9	8.2	7.9	8.0
Croatia	-1.7	-5.1	2.2	1.9	4.4	2.5	3.9
Hungary	-0.7	-3.9	3.2	1.5	2.7	6.1	3.2
Poland	-3.2	-4.8	-1.3	-2.1	-0.6	-0.5	0.2
Romania	-5.5	-8.3	-2.2	-0.7	-1.2	-2.1	-3.2
Sweden	5.7	6.8	4.4	4.5	4.3	3.8	3.1
United Kingdom	-3.8	-3.1	-4.6	-5.0	-4.9	-5.1	-3.3
European Union	-0.1	-1.0	1.0	0.9	0.9	1.3	1.3
United States	-3.3	-4.2	-2.3	-2.1	-2.2	-2.3	-2.3
Japan	2.9	3.4	2.3	0.8	3.1	3.9	4.0

Sources: ECB, national data from BIS databank (for the United States and Japan) and Eurostat.
1) Data for Cyprus available since 2008.

Chart 4.4 Balance of payments: net current account
(percentages of nominal GDP, non-working day and non-seasonally adjusted)



Sources: ECB, national data from BIS databank (for the United States and Japan) and Eurostat.

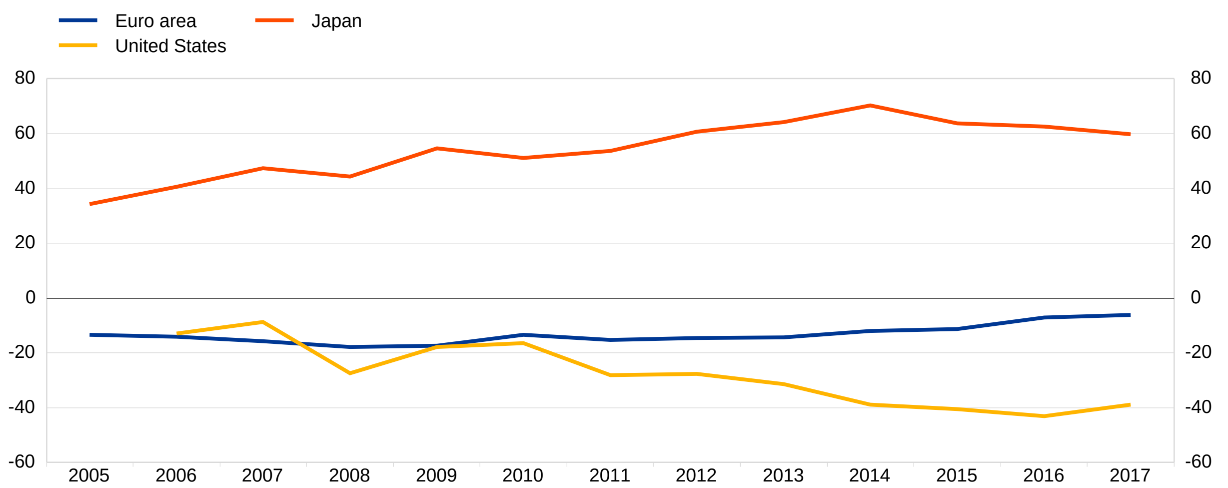
4 Exchange rates and balance of payments

4.5 Net international investment position
(percentages of nominal GDP; end-of-period averages)

	2005-2017	2005-2011	2012-2017	2014	2015	2016	2017
Belgium	49.7	48.8	50.7	45.1	45.9	57.0	52.4
Germany	30.7	20.5	42.5	40.6	46.4	50.7	54.0
Estonia	-59.2	-73.0	-43.1	-47.0	-40.2	-38.9	-31.4
Ireland	-112.9	-73.4	-159.0	-164.3	-198.7	-170.7	-149.3
Greece	-107.3	-86.1	-132.0	-131.9	-135.4	-137.8	-140.5
Spain	-84.8	-80.1	-90.3	-98.0	-89.5	-85.3	-83.8
France	-11.9	-8.9	-15.5	-15.6	-12.9	-14.9	-20.1
Italy	-18.5	-19.9	-17.0	-21.0	-19.5	-10.2	-6.3
Cyprus[1)]	-122.4	-105.1	-134.0	-147.0	-145.0	-123.0	-121.1
Latvia	-67.8	-71.9	-63.0	-66.1	-63.5	-58.4	-56.3
Lithuania	-48.6	-52.0	-44.6	-45.1	-43.4	-42.7	-35.9
Luxembourg	22.9	2.7	46.4	48.8	31.1	46.9	47.0
Malta	26.9	17.2	38.3	43.0	38.0	36.1	66.1
Netherlands	21.6	0.4	46.3	48.0	50.1	62.7	59.8
Austria	-3.8	-8.6	1.8	3.4	2.2	3.7	3.7
Portugal	-101.6	-92.3	-112.5	-118.6	-113.2	-105.5	-104.9
Slovenia	-36.9	-32.6	-41.9	-45.8	-39.6	-36.8	-32.3
Slovakia	-62.8	-61.9	-64.0	-63.6	-64.4	-66.6	-65.6
Finland	-0.1	-3.7	4.2	-3.2	1.5	8.6	2.4
Euro area	-13.3	-15.3	-11.0	-12.0	-11.5	-7.1	-6.1
Bulgaria	-70.8	-77.5	-63.0	-72.3	-63.0	-49.2	-41.8
Czech Republic	-36.0	-37.1	-34.8	-36.3	-33.2	-26.9	-27.3
Denmark	22.6	4.9	43.3	43.4	33.4	54.6	55.4
Croatia	-79.5	-80.2	-78.6	-85.0	-76.1	-69.7	-62.6
Hungary	-86.5	-99.0	-72.0	-78.5	-66.3	-58.8	-52.7
Poland	-58.5	-53.1	-64.7	-67.6	-60.9	-60.9	-62.2
Romania	-52.2	-49.1	-55.9	-56.8	-53.7	-48.5	-46.9
Sweden	-6.8	-7.9	-5.6	-2.2	-4.0	0.1	4.3
United Kingdom	-11.1	-6.4	-16.6	-22.8	-19.9	-2.3	-8.0
European Union	-	-	-	-	-	-	-
United States	-27.7	-18.6	-36.8	-38.9	-40.7	-43.1	-39.0
Japan	54.4	46.5	63.6	70.3	63.8	62.7	60.3

Sources: ECB and national data from BIS databank (for the United States and Japan).
1) Data for Cyprus available since 2008.

Chart 4.5 Net international investment position
(percentages of nominal GDP)



Sources: ECB and national data from BIS databank (for the United States and Japan).

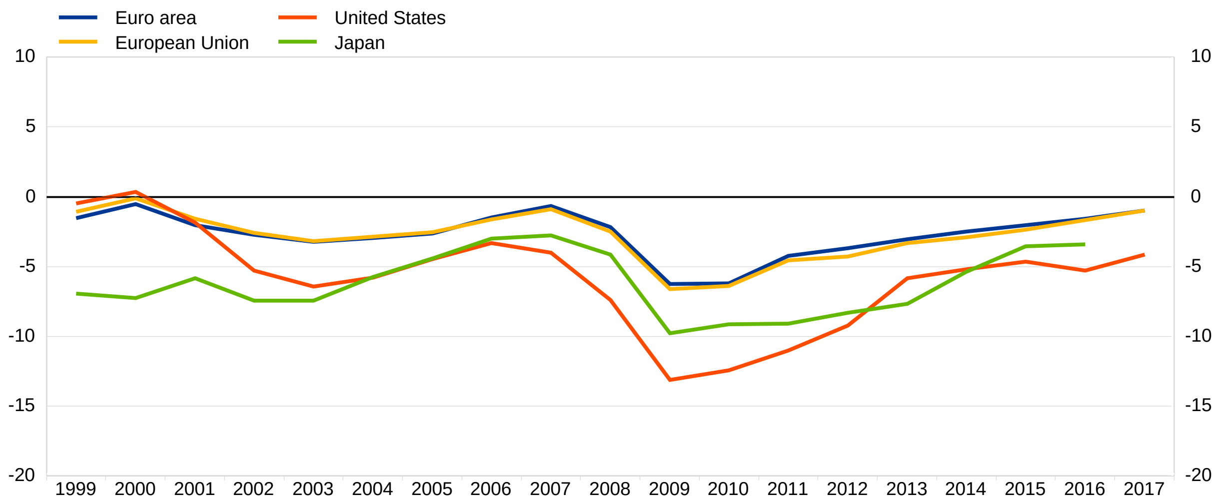
5 Fiscal developments

5.1 General government balance
(percentages of GDP)

	1999-2017 [1]	1999-2008 [1]	2009-2017	2014	2015	2016	2017
Belgium	-1.9	-0.6	-3.3	-3.1	-2.5	-2.4	-0.9
Germany	-1.4	-2.1	-0.6	0.6	0.8	0.9	1.0
Estonia	0.2	0.6	-0.1	0.7	0.1	-0.3	-0.4
Ireland	-3.8	0.7	-8.8	-3.6	-1.9	-0.5	-0.2
Greece	-7.0	-6.7	-7.4	-3.6	-5.6	0.5	0.8
Spain	-3.6	-0.3	-7.4	-6.0	-5.3	-4.5	-3.1
France	-3.6	-2.7	-4.7	-3.9	-3.6	-3.5	-2.7
Italy	-3.1	-2.9	-3.3	-3.0	-2.6	-2.5	-2.4
Cyprus	-2.9	-2.1	-3.9	-9.0	-1.3	0.3	1.8
Latvia	-2.4	-1.9	-3.1	-1.5	-1.4	0.1	-0.6
Lithuania	-2.6	-1.9	-3.4	-0.6	-0.3	0.3	0.5
Luxembourg	1.7	2.6	0.7	1.3	1.3	1.6	1.4
Malta	-3.2	-4.9	-1.4	-1.7	-1.0	0.9	3.5
Netherlands	-1.6	-0.6	-2.7	-2.2	-2.0	0.0	1.2
Austria	-2.3	-2.2	-2.5	-2.7	-1.0	-1.6	-0.8
Portugal	-5.1	-4.2	-6.2	-7.2	-4.4	-2.0	-3.0
Slovenia	-3.6	-2.2	-5.2	-5.5	-2.8	-1.9	0.1
Slovakia	-4.4	-5.0	-3.9	-2.7	-2.6	-2.2	-0.8
Finland	1.0	3.8	-2.2	-3.2	-2.8	-1.7	-0.7
Euro area	-2.7	-2.0	-3.4	-2.5	-2.0	-1.6	-1.0
Bulgaria	-0.5	0.6	-1.7	-5.4	-1.7	0.2	1.1
Czech Republic	-2.8	-3.6	-2.0	-2.1	-0.6	0.7	1.5
Denmark	0.6	2.4	-1.3	1.1	-1.5	-0.4	1.1
Croatia	-4.1	-3.7	-4.4	-5.1	-3.4	-0.9	0.9
Hungary	-4.6	-6.0	-3.1	-2.6	-1.9	-1.6	-2.2
Poland	-4.0	-3.9	-4.1	-3.7	-2.7	-2.2	-1.4
Romania	-3.3	-2.8	-3.9	-1.3	-0.7	-2.9	-2.9
Sweden	0.5	1.2	-0.2	-1.6	0.2	1.1	1.5
United Kingdom	-3.9	-2.0	-6.1	-5.4	-4.2	-2.9	-1.8
European Union	-2.7	-1.9	-3.7	-2.9	-2.3	-1.7	-1.0
United States	-5.8	-3.9	-7.9	-5.2	-4.6	-5.3	-4.1
Japan	-6.2	-5.5	-7.0	-5.4	-3.6	-3.4	.

Sources: ESCB and OECD.
1) Data for Croatia available since 2002.

Chart 5.1 General government balance
(percentages of GDP)



Sources: ESCB and OECD.

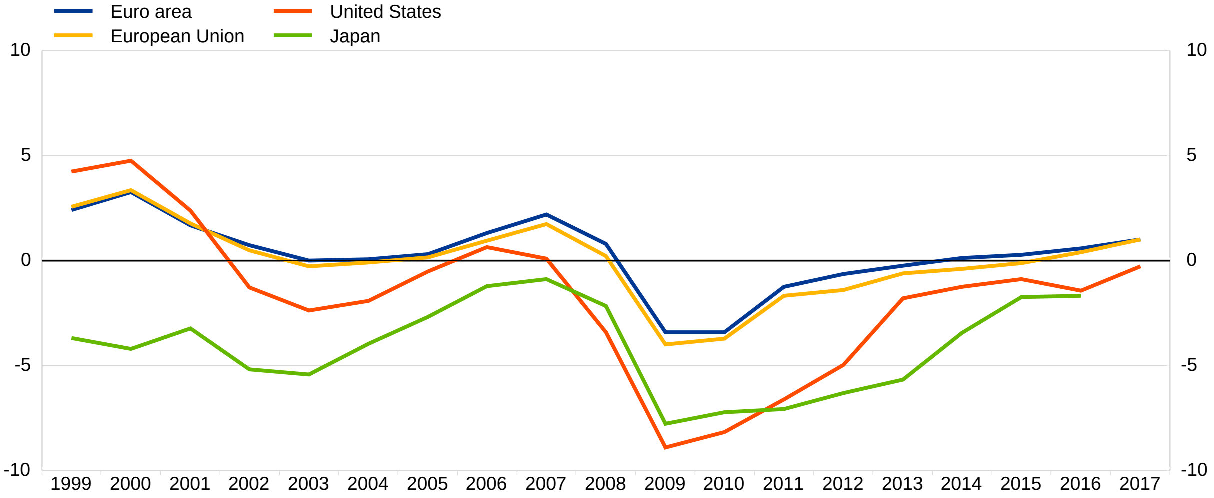
5 Fiscal developments

5.2 Primary general government balance [1)]
(percentages of GDP)

	1999-2017 [2)]	1999-2008 [2)]	2009-2017	2014	2015	2016	2017
Belgium	2.4	4.7	0.0	0.2	0.6	0.4	1.6
Germany	1.0	0.8	1.3	2.2	2.2	2.1	2.1
Estonia	0.4	0.8	0.0	0.8	0.2	-0.3	-0.3
Ireland	-1.6	2.1	-5.7	0.3	0.7	1.7	1.7
Greece	-2.0	-1.3	-2.8	0.3	-2.1	3.7	3.9
Spain	-1.1	2.0	-4.6	-2.5	-2.2	-1.7	-0.5
France	-1.0	0.2	-2.4	-1.7	-1.6	-1.7	-0.8
Italy	1.8	2.3	1.1	1.5	1.5	1.4	1.4
Cyprus	-0.1	0.9	-1.1	-5.8	1.9	3.1	4.3
Latvia	-1.4	-1.2	-1.7	-0.1	0.0	1.1	0.3
Lithuania	-1.3	-0.8	-1.8	1.0	1.3	1.6	1.6
Luxembourg	2.1	2.9	1.1	1.7	1.7	2.0	1.7
Malta	0.0	-1.1	1.3	1.0	1.3	3.0	5.3
Netherlands	0.4	1.9	-1.2	-0.7	-0.7	1.2	2.2
Austria	0.6	1.1	0.0	-0.3	1.3	0.5	1.0
Portugal	-1.7	-1.4	-2.0	-2.3	0.2	2.2	0.9
Slovenia	-1.5	-0.4	-2.9	-2.3	0.4	1.1	2.6
Slovakia	-2.4	-2.4	-2.3	-0.8	-0.8	-0.6	0.6
Finland	2.6	5.8	-0.9	-2.0	-1.6	-0.6	0.3
Euro area	0.3	1.3	-0.8	0.1	0.3	0.6	1.0
Bulgaria	1.1	2.9	-0.9	-4.6	-0.7	1.1	1.9
Czech Republic	-1.7	-2.6	-0.8	-0.8	0.5	1.6	2.3
Denmark	2.8	5.0	0.3	2.6	0.1	0.9	2.2
Croatia	-1.6	-1.8	-1.4	-1.7	0.0	2.1	3.5
Hungary	-0.4	-1.6	0.8	1.4	1.6	1.6	0.6
Poland	-1.6	-1.2	-2.0	-1.7	-0.9	-0.5	0.2
Romania	-1.4	-0.7	-2.3	0.4	0.9	-1.4	-1.5
Sweden	2.1	3.5	0.5	-0.9	0.6	1.5	1.8
United Kingdom	-1.6	0.1	-3.4	-2.7	-1.9	-0.5	0.9
European Union	0.0	1.1	-1.2	-0.4	-0.1	0.4	1.0
United States	-1.7	0.3	-3.8	-1.2	-0.9	-1.4	-0.3
Japan	-4.1	-3.3	-5.1	-3.5	-1.7	-1.7	.

Sources: ESCB and OECD.
1) General government balance excluding the interest expenditure.
2) Data for Croatia available since 2002.

Chart 5.2 Primary general government balance
(percentages of GDP)



Sources: ESCB and OECD.

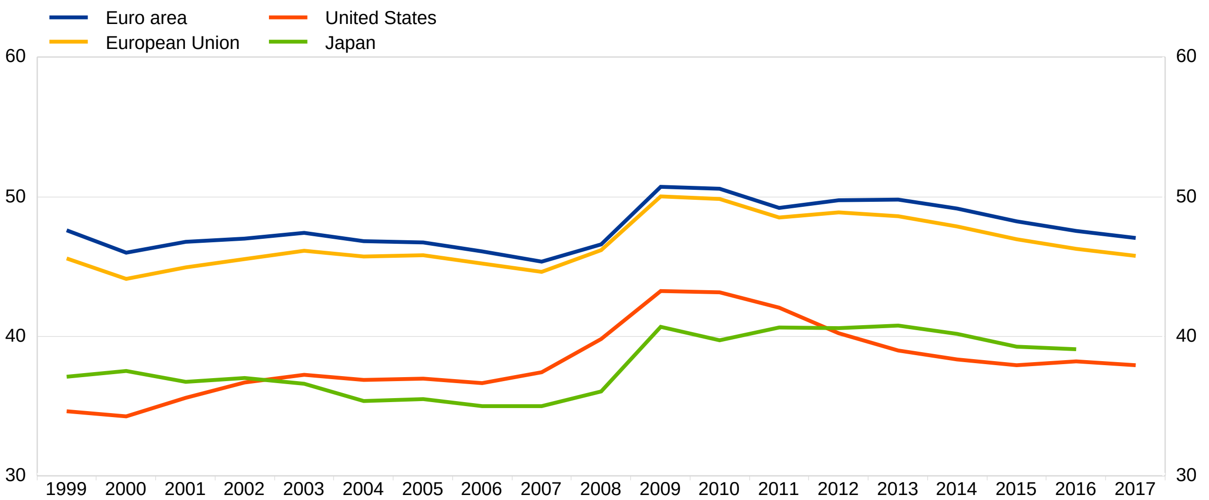
5 Fiscal developments

5.3 General government expenditure
(percentages of GDP)

	1999-2017 1)	1999-2008 1)	2009-2017	2014	2015	2016	2017
Belgium	51.8	49.6	54.2	55.3	53.7	53.0	52.2
Germany	45.4	45.8	44.9	44.0	43.7	43.9	43.9
Estonia	37.7	35.9	39.8	37.8	39.6	39.5	39.3
Ireland	37.0	34.2	40.1	37.4	28.9	27.5	26.3
Greece	49.8	46.7	53.2	50.2	53.5	48.9	47.3
Spain	41.7	39.0	44.7	44.8	43.7	42.2	41.0
France	54.7	52.7	56.9	57.2	56.8	56.7	56.5
Italy	48.6	47.2	50.1	50.9	50.3	49.1	48.7
Cyprus	39.4	37.4	41.7	48.8	40.6	38.0	37.5
Latvia	37.6	35.8	39.7	38.1	38.2	37.0	37.8
Lithuania	36.8	36.2	37.6	34.6	34.9	34.1	33.1
Luxembourg	41.7	40.5	43.1	42.0	42.0	41.9	43.1
Malta	41.2	42.1	40.2	41.1	39.6	36.5	35.6
Netherlands	44.4	43.1	45.8	45.7	44.6	43.6	42.5
Austria	51.3	51.1	51.5	52.4	51.1	50.3	49.2
Portugal	46.7	44.6	49.0	51.8	48.2	44.8	45.7
Slovenia	47.0	45.1	49.1	49.9	47.7	45.3	43.2
Slovakia	41.9	41.9	42.0	42.0	45.1	41.5	40.2
Finland	52.0	48.6	55.9	58.1	57.1	55.9	54.0
Euro area	47.8	46.6	49.1	49.1	48.3	47.5	47.0
Bulgaria	38.0	38.6	37.3	43.1	40.5	35.1	35.1
Czech Republic	42.5	42.7	42.3	42.4	41.7	39.5	39.0
Denmark	53.7	52.1	55.4	55.2	54.8	53.6	51.9
Croatia	47.6	47.6	47.6	48.1	48.3	46.9	45.0
Hungary	49.0	49.1	48.9	49.5	50.1	46.8	46.9
Poland	43.6	44.2	42.9	42.4	41.7	41.1	41.1
Romania	36.3	35.8	36.9	35.4	36.2	34.9	33.6
Sweden	51.7	52.5	50.7	51.1	49.6	49.7	49.3
United Kingdom	41.5	39.1	44.2	43.0	42.2	41.4	40.9
European Union	46.7	45.4	48.1	47.9	46.9	46.3	45.8
United States	38.2	36.6	40.0	38.3	37.9	38.2	38.0
Japan	37.9	36.2	40.1	40.2	39.3	39.1	.

Sources: ESCB and OECD.
1) Data for Croatia available since 2002.

Chart 5.3 General government expenditure
(percentages of GDP)



Sources: ESCB and OECD.

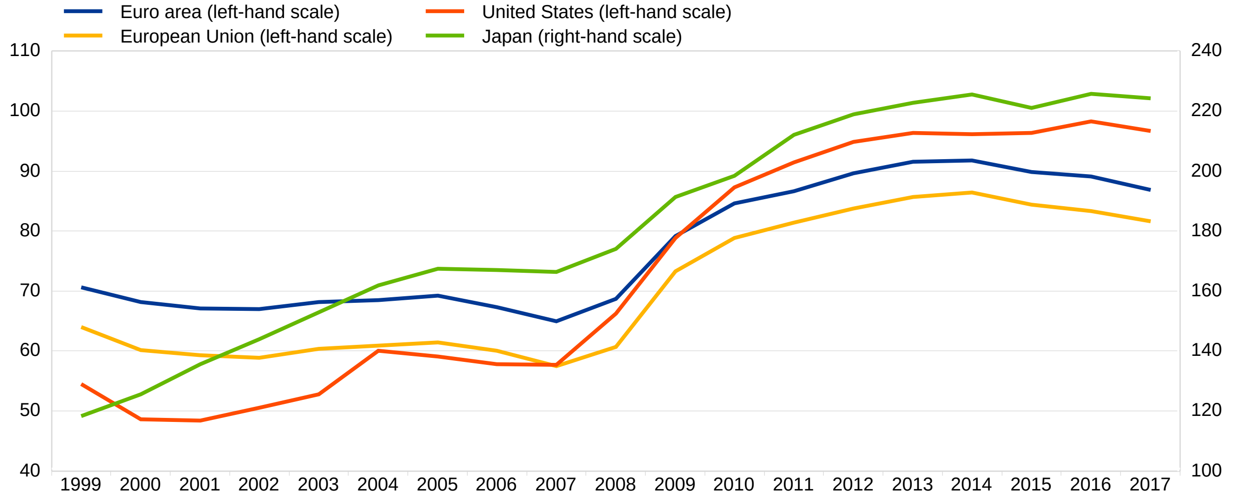
5 Fiscal developments

5.4 General government debt [1)]
(percentages of GDP)

	1999-2017 [2)]	1999-2008 [2)]	2009-2017	2014	2015	2016	2017
Belgium	101.8	99.8	103.9	107.6	106.5	106.1	103.4
Germany	68.0	62.6	74.1	74.5	70.8	67.9	63.9
Estonia	6.7	5.0	8.6	10.5	9.9	9.2	8.7
Ireland	60.2	32.2	91.2	104.1	76.8	73.4	68.4
Greece	133.4	104.4	165.7	178.9	175.9	178.5	176.1
Spain	64.9	47.3	84.5	100.4	99.3	99.0	98.1
France	76.9	63.4	91.9	94.9	95.6	98.2	98.5
Italy	113.2	102.9	124.8	131.8	131.6	131.4	131.2
Cyprus	71.5	58.0	86.5	108.0	108.0	105.5	96.1
Latvia	25.8	12.6	40.4	40.9	36.8	40.3	40.0
Lithuania	28.3	19.6	38.0	40.5	42.6	39.9	39.4
Luxembourg	14.2	8.1	20.9	22.7	22.2	20.7	23.0
Malta	64.2	65.2	63.1	63.4	57.9	55.4	50.1
Netherlands	56.0	50.2	62.6	67.9	64.6	61.9	57.0
Austria	74.0	66.7	82.0	84.0	84.8	83.0	78.3
Portugal	87.8	60.8	117.8	130.6	128.8	129.2	124.8
Slovenia	42.8	25.3	62.2	80.4	82.6	78.7	74.1
Slovakia	43.7	39.4	48.5	53.5	52.2	51.8	50.9
Finland	47.0	39.8	55.1	60.2	63.6	63.0	61.3
Euro area	77.3	68.0	87.7	91.8	89.9	89.1	86.8
Bulgaria	32.0	42.1	20.7	27.1	26.2	29.6	25.6
Czech Republic	31.7	24.9	39.3	42.2	40.0	36.8	34.7
Denmark	42.2	42.7	41.8	44.3	39.9	37.9	36.1
Croatia	57.2	38.7	71.6	84.0	83.7	80.2	77.5
Hungary	68.3	60.1	77.4	76.6	76.6	75.9	73.3
Poland	47.5	43.0	52.5	50.4	51.3	54.2	50.6
Romania	26.1	18.7	34.4	39.2	37.8	37.3	35.1
Sweden	44.9	48.3	41.0	45.5	44.2	42.4	40.8
United Kingdom	59.5	39.2	82.1	87.0	87.9	87.9	87.4
European Union	70.6	60.3	82.1	86.4	84.4	83.3	81.6
United States	73.3	55.6	92.9	96.1	96.3	98.3	96.7
Japan	181.7	151.3	215.6	225.6	221.0	225.7	224.3

Sources: ESCB and OECD.
1) Gross debt (includes currency, deposits, debt securities and loans). The data are consolidated between the sub-sectors of general government, except for Japan.
2) Data for Croatia available since 2002.

Chart 5.4 General government debt
(percentages of GDP)



Sources: ESCB and OECD.

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The general cut-off date for the data included in this report was 8 February 2019 (one exception being the unemployment rate for December 2018). The cut-off date for the statistics included in this report was 14 March 2019.

For specific terminology and abbreviations, please refer to the ECB glossary.

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